K. PLATONOV

THE WORD as a Physiological and Therapeutic FACTOR

K. I. PLATONOV

THE WORD as a Physiological and Therapeutic FACTOR

/THE THEORY AND PRACTICE
OF PSYCHOTHERAPY ACCORDING TO I. P. PAVLOV/

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BY DAVID A. MYSHNE

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ПЛАТОНОВ КОНСТАНТИН ИВАНОВИЧ

СЛОВО КАК ФИЗИОЛОГИЧЕСКИЙ
И ЛЕЧЕБНЫЙ ФАКТОР

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Owing to the entire preceding life of the human adult a word is connected with all the external and internal stimuli coming to the cerebral hemispheres, signals all of them, replaces all of them and can, therefore, evoke all the actions and reactions of the organism which these stimuli produce.

I. PAVLOV

PREFACE

The present, second edition of this monograph is coming out more than 25 years after the first edition which was published in 1930, i.e., in the very beginning of the development of Pavlov's theory of two signal systems of reality. It is therefore but natural that the first edition could not adequately reflect this brilliant Pavlovian conception.

Moreover, we were impelled to publish the second edition by the new facts accumulated by physiologists, as they have elaborated various problems of higher nervous activity since then, and by the necessity of widely introducing Pavlov's physiological teachings into medical practice.

In preparation for the second edition the monograph was radically revised. It now contains a number of new chapters and essential changes and additions to the former parts. In outlining the sequence of our material, we deemed it necessary to show ways of eliminating functional disorders of the higher nervous activity of man by psychotherapeutic methods. In this our investigations were concerned both with the nearest subcortical region and the two signal systems of reality, the normal co-ordination of which underlies the healthy personality, the integrity of our "ego."

During 1925-1932 our experimental work was done mainly in the Laboratory of Physiology of Labour of the Ukrainian Psychoneurological Institute (headed by M. Denisenko), in the Physiological Laboratory of the Ukrainian Institute of Labour (headed by G. Volborth), in the Laboratory of Physiology of Higher Nervous Activity of the Department of Physiology of the Kharkov Pedagogical Institute (headed by Y. Katkov), and later in a number of laboratories of the Central Clinical Psychoneurological Hospital of the Ministry of Railways. Clinical and polyclinical observations were conducted during 1910-1954 essentially in the Psychotherapeutic Department of the Dispensary of the Ukrainian Psychoneurological Institute, in the Clinic of Nervous Diseases of the Kharkov Medical Institute and in the Department of Neuroses of the Central Clinical Psychoneurological Hospital of the Ministry of Railways.

It will be observed that not so many new experimental data have been accumulated since the publication of the first edition. Nevertheless, the *theory of suggestion* has attracted the attention of a wide circle of investigators, especially physiologists, physicians and teachers, because we are now already in a position adequately to understand and appreciate problems of psychotherapy, hypnosis and suggestion in particular.

Far be it from us to think that the material of the monograph can offer an exhaustive solution of the problems of psychotherapy and of the problem of neuroses closely connected with it. We only offer points of departure which may serve as a stimulus for further and deeper elaboration of these problems. Nevertheless, the monograph summarizes our experimental and clinical work done in this field over more than 40 years. It was precisely in 1910, when, on V. Bekhterev's advice, we completed in his clinics our dissertation, one part of which was devoted to mechanisms of verbal suggestion in *suggested sleep,* that our research work in this sphere began. We are certainly fully aware of the fact that a successful solution of all these complicated problems is possible only by continued joint creative work of physiologists and clinicians on the basis of Pavlov's physiological teachings.

The object of our monograph is to show precisely what psychotherapy can and does effect under certain conditions. Not only somatologists but frequently even psychiatrists, have inadequate knowledge of the efficacy of psychotherapy. In order that the methods of psychotherapy be extensively introduced into medical practice, we need facts directly testifying to its efficacy. It has been our object to give these facts since, according to Pavlov, "facts are the breath of life for the scientist." At the same time, we intended to acquaint the reader with our methods of studying and employing psychotherapy on the basis of Pavlov's teachings.

Considering the fact that the results of psychotherapy have thus far been insufficiently palpable for many physicians, we are stressing the method of therapeutic verbal suggestion with patients not only in the waking state, but also, and mainly, during suggested sleep. It is precisely the method of hypnosuggestive therapy in the light of Pavlov's teachings on the higher nervous activity that has now been most scientifically substantiated and produces, in corresponding cases, the fastest and stablest effects satisfying both to the patient and the physician. In order to combat the reserved and sometimes even sceptical attitude to this method still prevailing among physicians we cite numerous facts and try to elucidate them from the physiological positions of Pavlov's school. In addition, we also took into account V. Bekhterev's instructions and invariably based ourselves on his numerous works. It is well known that V. Bekhterev persistently used various methods of psychotherapy, particularly verbal suggestion in a hypnotic state, till the very end of his life.

Of course, it must not be thought that psychotherapy produces a positive effect in every case. If we cite mainly positive results of psychotherapy in certain parts of the monograph, we do so not only to show the degree of its efficacy in corresponding cases, but also to analyse the *mechanisms* of this influence.

Our monograph also aims to emphasize that medicine has essentially four basic therapeutic methods: drugs, surgery, physiotherapy, and psychotherapy, and that psychotherapy, particularly suggestive therapy, runs through all the other therapeutic methods.

We shall therefore consider ourselves highly gratified if our modest contribution attracts the attention of physicians of various specialities and impels them extensively to introduce the methods of psychotherapy and psychoprophylaxis into their daily work.

The enormous significance of the theory of higher nervous activity demands our greatest efforts in making it available to all divisions of clinical medicine, particularly to the clinic of neuroses, these main objects of psychotherapy.

We assume that the material on the theory of suggestion as a physiological and therapeutic factor hereby offered to the readers, may be of certain interest and significance not only to physicians but also to teachers and other specialists closely connected with problems of educating man.

In conclusion, we consider it our pleasant duty to express our heartfelt gratitude to all our closest associates, participants in our common work done since 1923: I. Velvovsky, P. Galperin, D. Gubergrits, Z. Zakamennaya, P. Istomin, L. Kvint, P. Kryuchkovich, A. Matskevich, M. Paikin, F. Tseikinskaya, A. Tsinkin, and R. Shlifer. This work was subsequently done by I. Apter, A. Breslav, N. Zelensky, Y. Katkov, K. Katkov, A. Konstantinova, Z. Kopil-Levina, I. Murakhovskaya, A. Prusenko, M. Truten, N. Utevsky, M. Khaimovich, I. Khalfon, and M. Kholodenko. Last but not least, M. Amstislavskaya, Y. Voronina, M. Kashpur, K. Lavrova, and A. Sosedkina took a very active part in this work after the war.

It will be noted that physicians of other specialities answered our appeal to introduce the methods of psychotherapy into their therapeutic practice. In this connection mention can be made of obstetricians M. Vigdorovich (Leningrad), M. Miloslavsky, A. Motsak, V. Ploticher, K. Pronayeva, and M. Sirkin (Kiev), I. Tsvetkov, M. Shestopal, and E. Shugom (Kharkov); surgeons S. Berg (Simferopol), G. Gurevich, I. Mastbaum (Kharkov), and F. Sivenko (Belgorod); internists A. Geniyev (Baku), S. Yoffe (Lvov), V. Shapiro (Serpukhov); dermatologists N. Bezyuk (Kiev) and I. Zhukov (Sochi-Khosta); psychiatrist I. Mezin (Stanislav); psychoneurologists V. Kislov (Donbas, Piatigorsk) and A. Troshin (Sverdlovsk) and psychologist M. Lebedinsky. Psychiatrist A. Gotsiridze (Tbilisi) with his numerous pupils (N. Veshapeli, I. Nikolava, Y. Ter-Ovakimov, et al.) worked in contact with us for many years.

Y. Katkov and V. Poderni actively participated in the publication of the second edition of the monograph, and we took advantage of their advice in difficult cases. The various theoretical problems which had to be elucidated in the new edition of the monograph were elaborated in association with them. We hereby express our special gratitude for all they have done.

We are also very thankful to A. Volfovsky, who volunteered to examine our manuscript and gave us a number of valuable suggestions.

May 1955 *Author*

INTRODUCTION

Psychotherapy is one of the oldest methods of treatment, and great importance has long been attached to it. The important part played by the psychic factor in the development of morbid states and in their treatment had been pointed out by many outstanding medical workers. But whereas the possibility of favourably affecting the patient and the morbid processes in his body by the suggestion of a physician is now, apparently, no longer doubted, the mechanism of the verbal influence is still insufficiently clear.

Nor are the limits of psychotherapy very clear, and hence, the contradictory and not infrequently incorrect ideas about the essence and importance of various methods of psychotherapy (suggestion in the waking state and under hypnosis, rational psychotherapy according to Dubois, etc.) in the treatment of functional disorders of the higher nervous activity.

It will be observed that of all the therapeutic methods the processes underlying psychotherapy are the most difficult to study objectively. Until recently, psychotherapy was thought to be inaccessible to objective evaluation. For this reason, the influence on the state of the patient's cortical dynamics could not always be in any way objectively recorded.

At the same time, there has been no agreement until very recently in understanding the essence of the functional disorders of the higher nervous activity, as there has been no precisely established nomenclature or classification. This can naturally explain the difficulties of a psychotherapist in analysing the disease and in choosing a rational method of psychotherapy in each particular case.

However, the main reason impeding the scientific substantiation of psychotherapy in the past was the dualistic view of the nature of the human personality prevalent at that time. It was primarily expressed in the subjectively psychological understanding of the laws governing psychic processes both in their normal and pathological manifestations, this understanding being severed from the physiological basis.

It was only with the further development of Pavlov's physiological teachings on the higher nervous activity that psychotherapy entered on a new path which has made possible the materialist understanding of the underlying mechanisms and which has opened new and extensive practical possibilities. Pavlovian physiology has created a physiological basis and has discovered the mechanisms of higher nervous activity permitting of

an understanding of the essence of psychotherapy and its proper application.

Soviet psychotherapy has developed under conditions entirely different from those in foreign countries and in pre-revolutionary Russia. It is being built on the basis of dialectical materialism, a materialist teaching of the higher nervous activity, the unity of the mind and body, and the determination of consciousness by the conditions of life.

It has therefore resolutely discarded the harmful idealist conceptions of foreign psychotherapy (Freud, Adler, et al.) which misinterpret the theory of neuroses and the methods of psychotherapeutic aid. It is well known that in their time these conceptions muddled the idea of the nature of neuroses and their treatment to such an extent that these problems long seemed insoluble.

V. Bekhterev (1911, 1915, 1929), who is rightly considered the founder of Russian psychotherapy, regarded Freud's teachings critically. As a psychoneurologist he outlined some important requisite conditions and possibilities for using psychotherapeutic methods and the direction of their further development.

It must be admitted, however, that before Pavlov's teachings the investigation and understanding of the complexity of the structure of human personality and the diversity of inborn and acquired type peculiarities of the nervous system, like the complexity and variability of the concrete conditions in the relations of the human organism to its social and physical environment, presented absolutely insurmountable difficulties. And only on the basis of the physiological research of the Pavlovian school have we now become able to disclose the concrete structure of a neurosis and the concrete mechanisms of its origin and development.

The achievements of Pavlovian "real physiology" of the brain have forced us radically to change our approach to the study of neuroses and the use of psychotherapy with the result that psychotherapeutic aid, as it is administered today, has become an efficient method of treatment.

It will be noted that psychotherapy is effective not only in cases of functional disorders of the higher nervous activity, but also in psychogenic disorders of the functions of various organs and systems. Many laboratories are now undertaking research which is helping to substantiate psychotherapy and, at the same time, psychoprophylaxis (A. Ivanov-Smolensky, N. Krasnogorsky, S. Davidenkov, F. Maiorov, B. Birman, L. Gakkel, V. Myasishchev, Y. Povorinsky, et al.).

It will subsequently be shown that in connection with the study of suggestion as a physiological and therapeutic factor and with the analysis of the mechanisms of functional disorders of the activity of the higher divisions of the central nervous system, the methods of psychotherapy are receiving a sound physiological basis.

We are growing increasingly convinced that suggestion is sometimes an extraordinarily potent therapeutic factor exerting a direct influence on the nature of the dynamics of the cortical processes. This offers an immediate opportunity for reorganizing the physiological processes, including a mobilization of the necessary inner resources in the patient's organism.

The suggestion of the physician, considering the most important peculiarities of the closest and remote anamnesis of the patient, may acquire great therapeutic importance which is not fully understood and appreciated as yet.

Our book aims at bringing the reader closer to the understanding of the mechanisms of physiological and therapeutic influence of suggestion. We have undoubtedly not yet fully mastered the methods of influencing the higher nervous activity of man by suggestion. This is the task of further research.

By summarizing in this work our 45-year experience of successfully using psychotherapy, we have done all we could to stimulate a more extensive and deeper elaboration of the problems of the theory and practice of psychotherapy, particularly the methods of suggestion and hypnosis; we have also done our best to pass it on to others. We have set ourselves the task of showing that the use of psychotherapy along with other scientifically substantiated methods of treating the sick is now absolutely necessary for Soviet medical science. Acquaintance with the methods of psychotherapy is important not only to psychoneurologists, who are especially treating neuroses, but also for physicians in all other branches of medicine because in the light of the theory of the unity of mind and body any somatic disease is indissolubly connected with the state of the patient's higher nervous activity.

We deem it necessary especially to emphasize that, as practice shows, narrow localistic ideas still prevail among physicians, including psychoneurologists. These ideas not infrequently force the physician to search for an organic nature of the disease where it is really functional. We must also make special mention of the fact that physicians still underestimate the role of the psychotraumatic factors in the origin of various disorders of the functions of the internal organs and systems. The physician's suggestion, which is not infrequently the source of iatrogenic diseases, is also underestimated.

All in all, our book presents an attempt to activate therapeutic thinking in this direction. We are aware of all the difficulties. But work in this direction is very thankful, because by helping in the treatment and cure of the sick it may prove highly fruitful and within much wider limits than it may at first appear.

THE WORD
AS A PHYSIOLOGICAL FACTOR

I. P. PAVLOV'S TEACHINGS ON SLEEP, HYPNOSIS, AND VERBAL INFLUENCE

CHAPTER I

SUGGESTION AS A CONDITIONED STIMULUS

> A word is as real a conditioned stimulus for man as all the other stimuli in common with animals, but at the same time more all-inclusive than any other stimuli.
>
> *I. Pavlov*

The teaching on higher nervous activity elucidates the regularity of the processes taking place in the cerebral hemispheres of man, the processes which ensure the complex and subtle relations with the external (physical and social) and internal environments of the human organism. We assume that the reader is familiar with the principles of Pavlov's teachings and we refer those who are interested to the basic works of this scientist.

During I. Pavlov's life his pupil K. Bykov experimentally demonstrated the possibility of conditioned reflex relations with absolutely all internal organs and systems. On the basis of these facts it has become clear that the stimuli from the internal organs create in the corresponding points of the cerebral cortex foci of excitation which under certain conditions enter into temporary relations with any other foci of excitation created by the stimuli of the external or internal environment.

Bykov's laboratories also demonstrated that temporary connections could be formed with denervated organs (kidneys, spleen, pancreas) through humoral paths as well. This means that conditioned reactions involve the incretory glands whose hormones in their turn, exert an influence on a system of organs through the blood.

Thus, the entire internal environment is subservient to the influences of the cerebral cortex whose impulses can change the state of any internal organ. Due to temporary connections, the cerebral cortex closely coordinates the external and internal environments of the organism.

Numerous works of Soviet investigators have demonstrated that the conditioned reflex is complicated and that it includes most diverse manifestations of somatic and vegetative functions which vary with the biological significance of the stimulus. Owing to the activity of the cerebral cortex, all functions are united in the reaction of the integral organism thus ensuring its equilibrium with the environment.

By discovering the laws governing higher nervous activity in the higher animals, Pavlov proved that the higher nervous activity of man was subject to the same laws. The latter, however, has a special socially conditioned

addition which shows a qualitative peculiarity. This addition is connected with labour and social activity, concerns the speech function and introduces a new principle into the activity of the cerebral hemispheres constituting the second signal system of reality typical only of man. By daily combining with various stimuli of the first signal system under conditions of co-ordination with the environment a word becomes a real and significant conditioned stimulus and constitutes the basis of a complex system of "interhuman signals," "system of speech signals." In addition, verbal stimuli act as an abstraction from reality and admit of generalizations, thus forming the *specially human, higher, thinking.* Abstraction from reality, characteristic of the second signal system, is achieved because the image of objects and actions expressed in words and ideas replaces their concrete effect on the organism. The fact that the combination of one verbal stimulus with another verbal stimulus gives rise to very complicated temporary bonds superposed on each other in keeping with man's growing life experience, is also of great importance.

The emergence and development of the function of speech have led to the development of language which is one of the necessary conditions for the existence of society. Being connected with the complex activity of the brain, such as thinking, language registers and consolidates in words and sentences the results of thinking, the achievements of the cognitive activity of man, and thus makes possible the exchange of thoughts in human society.

This complex *semantic* and *generalizing* significance of the word represents its qualitative distinction not only as a specific conditioned stimulus of the second signal system but also as the basic structural unit of language. It determines the force with which the word as an *actual* conditioned stimulus affects the processes of man's higher nervous activity.

It will be observed that the conditioned reactions of the second signal system are formed in man on the material basis of the first signal system. Moreover, the second signal system acts on the first signal system and on the subcortical structures "firstly by its inhibition which is so well developed in it and which is absent or nearly absent in the subcortex (and it must be assumed less developed in the first signal system); secondly, it also acts by its positive activity—the law of induction."[1]

But as long as it is a question of the activity of the same nervous tissue, we must remember that the basic laws established for the first signal system also govern the second. These Pavlovian premises serve as points of departure for revealing the mechanism of influencing the second signal system by word and, through it, the first signal system and the subcortex. Another and no less important premise is that the higher nervous activity of man is socially determined. The social environment is therefore reflected in the joint work of the second and first signal systems.

Daily observations show that the speech system developed in the course of human history may provoke in man the most diverse response reactions which can be objectively registered, though we do not as yet sufficiently appreciate the real influence of verbal stimuli on the deep and concealed physiological processes. However, recent experimental data of laboratory

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[1] I. Pavlov, *Pavlovian Wednesdays,* U.S.S.R. Academy of Sciences Publishing House, Russ. ed., Vol. III, p. 10.

and clinical investigations already make it possible correctly to appraise the significance of the word as an important physiological factor.

According to these investigations, the word is really far from immaterial to the human organism and under certain conditions produces various changes in it, depending on its purport. The facts illustrating this situation, especially those from the theory of verbal suggestion, have long been known. Thus, it has been known that in some people it is possible to provoke by purely verbal influence, both in the waking state and, particularly, under hypnosis, reactions the reality of which has usually been subjected to doubt.

But, whereas these reactions were perfectly obvious, they have been entirely incomprehensible until recently from the scientific point of view which has made them the source of various idealist interpretations. These phenomena include verbal suggestion of a hypnotic state, the experience of various suggested emotions by the subject under hypnosis, the rise of various suggested disorders of sensitivity, and the execution of unusual acts (for example, eating a piece of chalk as if it were an apple, etc.).

Let us recall the observations mentioned by N. Wedensky in his lectures (1911-1913) signifying that suggestion made under hypnosis can accelerate intestinal peristalsis, cause a local dilation of blood vessels or premature menstruation. It is well known that this can never be done voluntarily.

However, it has only become possible to get a clear *picture of the physiological mechanisms* of influences exerted by verbal suggestion on the processes occurring in the organism on the basis of Pavlov's theory of higher nervous activity which has been able to explain how a word of one man can exert an influence on the processes of the higher nervous activity of another man, what suggestion, autosuggestion and suggestibility are, what their role in the life of man is, and the pathogenesis of some diseases and their treatment.

Any word as a stimulus is immaterial to man until a conditioned reflex bond between this word and some unconditioned stimulus or conditioned stimulus of the first signal system has arisen in the cortex.

Thus, the sound of the word "hurts" acquires a definite meaning for a child only when it combines with real pain at least once. Only after this can a corresponding conditioned reaction to the verbal stimulus "hurts" be provoked and it will, in its composition, reproduce precisely this unconditioned, i.e., pain, reaction.

The following observation made by us as early as 1926 (Fig. 1) may serve as an illustration of the fact that a verbal stimulus can provoke a reaction which replaces an unconditioned reaction. The subject in a hypnotic state is pricked with a pin. The sensation of pain gives rise to a respiratory reaction. Some time after this, a reaction of the same type (in this case somewhat weaker) arises in response to the word "hurts" or "pin" alone.

A stronger respiratory reaction is formed in response to the words "pin-prick" and "hurts very much" (Fig. 2). In this case a sham puncture *preceded* the real one. Since the morbidity of the puncture was emphasized by the intonation of the voice, the reaction was stronger. Then, after first warning the subject that the puncture would be painless, we observed a

hardly perceptible respiratory reaction in response to a real pin-prick. Subsequently, after a more vigorous warning that the puncture would hurt very much a very strong respiratory reaction was obtained in response to the same real pin-prick. These data denote the importance not only of the meaning of the word, but also of the intonation with which it is uttered.

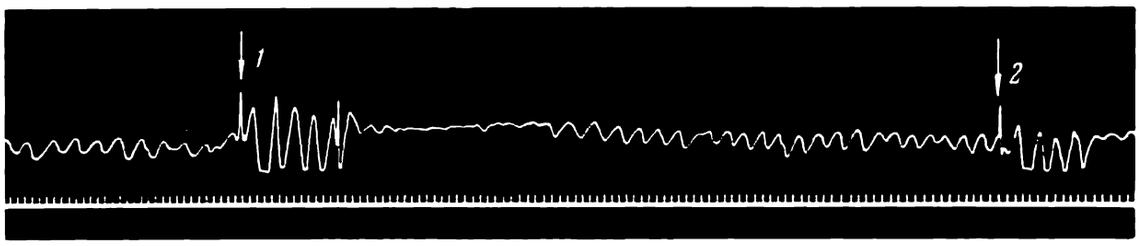

Fig. 1. Change in respiration caused by a pin-prick (*1*) and by the spoken words "hurts" or "pin" alone (*2*).

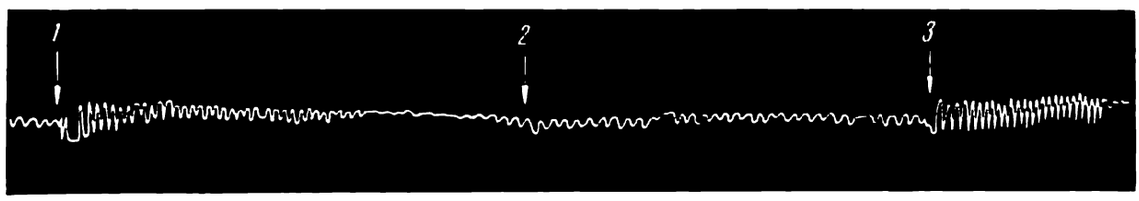

Fig. 2. Change in respiration caused only by the spoken words: "Pin-prick, very painful" (*1*), "No pain when pricked," with a subsequent pin-prick (*2*), and, lastly, by the vigorously spoken words: "Pin-prick hurts very much" accompanied by a pin-prick (*3*).

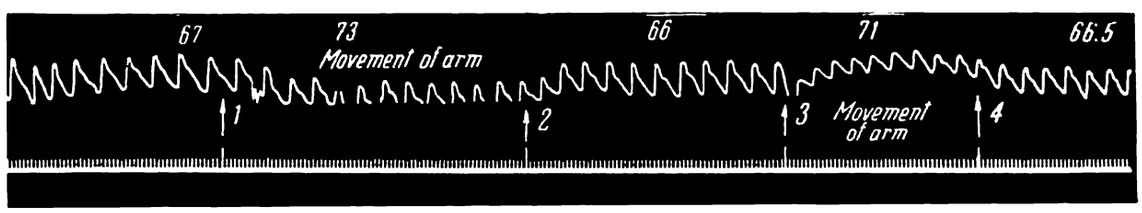

Fig. 3. Change in pulse rate under the action of verbal stimuli.

1—acceleration of the pulse after pin-prick; *2*—and *4*—slowing down of the pulse in response to the words: "No pain"; *3*—acceleration of the pulse in response to the words: "Pin-prick hurts." Figures show pulse rate.

Observation on another subject, also conducted under hypnosis, illustrates the same, but only on the part of the pulse. Both during the real pain stimulus and in response to the word "pin-prick" alone, the pulse grew faster by the same number of beats, and in both cases there was the same motor (defensive) reaction in the form of jerking the hand away. Later, a deceleration of the pulse was observed in response to the words: "No pain" (Fig. 3).

Even more demonstrative in this respect are the plethysmographic studies conducted by A. Pshonik (1952), which have shown that the reaction to the usual conditioned stimulus of the first signal system—bell (Fig. 4, *a*) and light (Fig. 5, *a*)—can later be obtained in response to a verbal warning—"I am going to ring" (Fig. 4, *b*) or "I am going to turn on the

light" (Fig. 5, *b*), i.e., by means of only a verbal stimulus addressed to the second signal system.

In the investigation conducted by R. Felberbaum, Y. Levitus and K. Sokolova (1953) the vasoconstrictor reactions to the word "pin-prick" in children were in a number of cases as pronounced as the reactions to a

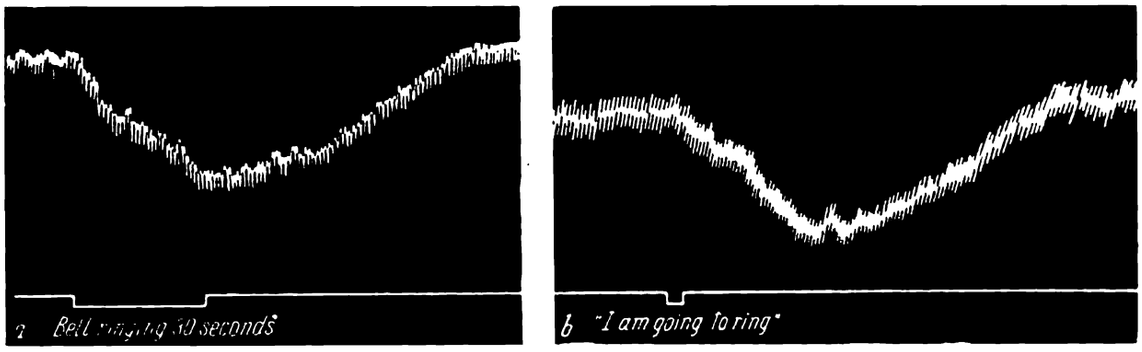

Fig. 4. Conditioned vascular reaction.

a—conditioned reflex constriction of vessels elaborated in response to a bell; *b*—constriction of vessels in response to the verbal signal "I am going to ring" alone (observation by A. Pshonik, 1952) (plethysmogram).

puncture, and in some children the verbal stimulus sometimes provoked a stronger vascular reaction than the real puncture (Fig. 6).

In the foregoing examples such influences as light and the bell correspondingly reinforced are stimuli of the first signal system, while the words

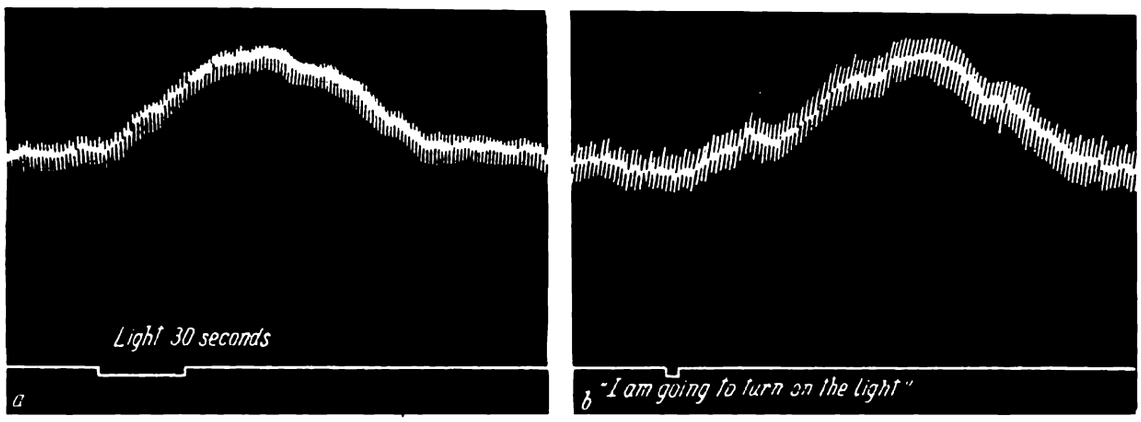

Fig. 5. Conditioned vascular reaction.

a—conditioned reflex dilation of vessels elaborated in response to light; *b*—dilation of vessels in response to verbal signal "I am going to turn on the light" alone (observation by A. Pshonik, 1952) (plethysmogram).

"pin" and "hurts" are stimuli of the second signal system. The different reactions to the words "pin," "I am going to ring," and "hurts" show that the word is really a stimulus which provokes the same reaction as the concrete stimulus of the first signal system. Moreover, the sense purport of the verbal stimulus *replaces* the action of the conditioned stimulus of the first signal system which has a temporary bond with the corresponding unconditioned stimulus.

The aforesaid facts confirm that a word can really provoke physiological reactions corresponding to its meaning connected with the corresponding influences of the environment, signalling and replacing them ("signal of signals"). The investigations in which verbal stimuli were used also serve as an illustration of what is known as direct verbal suggestion considered by I. Pavlov as the "most simplified and most typical conditioned reflex of man." Hence, the phenomenon of suggestion is based on a conditioned reflex mechanism and the process of suggestion receives objective physiological substantiation. The same must be said in relation to autosuggestion when a word may provoke definite reactions even without being pronounced or written and acting in this case as "inner speech" which represents a process of "specially human higher thinking" with its abstractions and generalizations.

Thus, among the factors capable of influencing the higher nervous activity of man the *word* is exceptionally powerful and plays an essential part in the individual and social life of man.

Pavlov's theory about the two signal systems of reality must naturally arrest the attention of investigators on the word as one of the most important factors in the higher nervous activity of man. This, therefore, explains the interest in physiological mechanisms underlying the influence exerted on man by a *word,* as well as in the special laboratory investigations conducted in connection with this problem.

The first experimental study in this direction was the work of V. Vasilyeva (from V. Bekhterev's clinic, 1913) who was the first to obtain a combinative (conditioned) reflex by the motor methods in response to a double stimulus which included the sound of an electric bell and the word "bell." In the elaboration of this reflex the verbal stimulus and the bell were used simultaneously with stimulation of the upper extremity of the subject by electric current lasting for a period of one second and provoking a defensive motor reaction. It was noted that the conditioned reflex in response to the sum of these two conditioned stimuli—the bell + the word "bell"—arose as early as the first session. Subsequently, the reflex began to appear also in response to its separate components, both to the bell alone and to the word "bell" uttered separately. Thus, a conditioned (motor) reflex was obtained for the first time in response to a word. It will be noted that the motor reaction arising at this time in response to the verbal stimulus alone was sufficiently stable and manifested itself without the additional influence of the current for a period of five sessions running. In other words, *a stable motor conditioned reflex in response to a verbal stimulus alone was formed.*

Of course, for the motor analyser of the subject the word "bell" was in the beginning an indifferent stimulus which did not provoke a defensive motor reaction until the sound of the syllables "*zvo-nok*" (bell) formed a bond with definite points of the motor and auditory analysers in the cerebral cortex of the subject. Only from that moment on did the word "bell" acquire for the nervous system a new qualitative meaning of a stimulus signalling the influence of the electric current.

The verbal stimulus began to be used for replacing the unconditioned stimuli since 1911, first in the laboratory of V. Bekhterev (K. Platonov, 1911; V. Vasilyeva, 1913; N. Shchelovanov, 1925; V. Myasishchev, 1926),

and then in the laboratory of V. Protopopov. At the present time investigations in conditioned reflexes by speech methods are conducted in the laboratories of A. Ivanov-Smolensky, N. Krasnogorsky, K. Bykov, F. Maiorov, et al.

In recent years L. Shvarts (1948-1949) established experimentally that the conditioned stimulus of the second signal system was precisely the meaning of the word-stimulus and not its sound image, i.e., its semantics, not its sonorics. In this case the character of the cortical reaction to the semantics and the sonorics of the word may testify to the nature of the

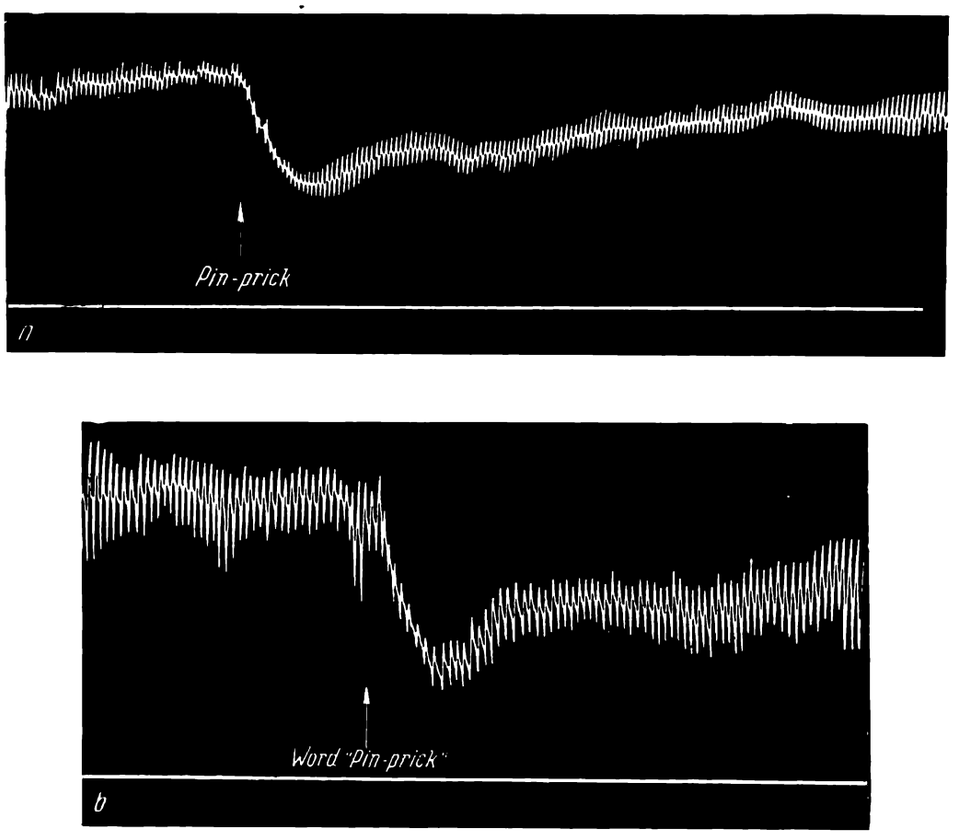

Fig. 6. Vascular reaction.

a—constriction of vessels in response to pin-prick; *b*—constriction of vessels in response to the spoken word "pin-prick" alone (observation by R. Felberbaum, Y. Levitus and K. Sokolova) (plethysmogram).

relationships between the first and second signal systems. As to the mechanisms by which conditioned reflex bonds in response to a word are formed, the primary conditioned reflex bond in response to the sonorics (consonance) of the word subsequently *fades,* while in response to the semantics (content) of the word it *strengthens.*

Thus, in the investigations conducted by L. Shvarts, while the tone of the cerebral cortex was lowered by administration of chloral hydrate, the conditioned reflex *weakened in response to the meaning of the word first,* and in response to its sound image only later; contrariwise, the extinguished conditioned reflex in response to a similar word was again disinhibited under these conditions.

By combining with certain stimuli in the individual life of man and thus forming primary and then secondary and even higher-order chain reflexes (in conditioned-conditioned reflexes of A. Ivanov-Smolensky's terminology) the word acquires the nature of a very many-sided complex stimulus of the second signal system which is in individual cases capable of exerting a very powerful general and special influence on the cerebral cortex.

Moreover, as A. Ivanov-Smolensky emphasized, generalization of the heard, seen and uttered word into a signal cortical dynamic structure connected with the object it signifies is specific for the entire verbal signalling in general.

In addition, V. Protopopov showed even earlier (1921) that a verbal stimulus may facilitate and accelerate the formation of a new conditioned reflex if the *name* of this stimulus known to the subject is added to the new conditioned stimulus. Thus, the word which signifies the name of the given object and is a well established natural conditioned stimulus may greatly reinforce the new conditioned reflex.

The investigations conducted on children by O. Kapustnik (1930), V. Fadeyeva (1934), L. Kotlyarevsky (1934), L. Khozak (1933), et al., in A. Ivanov-Smolensky's laboratory showed that the temporary bonds formed in the first signal system received their verbal reflection in the second signal system and vice versa.

By designating the stimuli and responses to them by the letters D—direct (i.e., first signal) and V—verbal (second signal) respectively, the aforesaid authors establish the following sequence in the rise of temporary bonds: the bonds between indirect (i.e., non-verbal) external or internal stimuli and also indirect (i.e., non-verbal) response reactions (bonds $D \rightarrow D$) are formed first. The bonds arising between verbal influences and direct reactions (bonds $V \rightarrow D$) are added to these later. The bonds between direct stimuli and verbal response reactions (bonds $D \rightarrow V$) are formed still later. And finally, the latest and highest form of bonds are the bonds between the verbal influences and similarly verbal responses (bonds $V \rightarrow V$). Thus, in the first case the conditioned bond is effected wholly within the limits of the first signal system, in the last case it begins and ends in the second signal system; in the second case, beginning in the second signal system it enters upon the effector path of the first signal system, while in the third case, contrariwise, beginning in the first signal system it ends in the second (A. Ivanov-Smolensky, 1949). All this reflects the inseparable bond between the first and second signal systems and their co-ordination.

The second and no less important method of experimental physiological investigation of the word is the successive laboratory-clinical analysis of the reactions which the word may provoke on the part of the higher nervous activity of man. It has long been generally recognized that under certain conditions a verbal influence alone may evoke the strongest emotional reactions in man capable of leaving an imprint on the rest of his life and activity. It is not without reason they say that "a word can make or break a man."

It has also been known for a long time, for example, that under certain conditions it is possible to put a person to sleep by the direct influence of the word "sleep," i.e., to provoke in his organism the enormous reorganization which leads to its lapse into a physiological state of sleep.

It follows that the study of the physiological changes produced in the human body by a direct, verbal, influence is a very important problem for the investigator. However, not very many investigations of this sort have been conducted either in our country or abroad.

The changes on the part of the pulse and respiration which arise during the transition of man from the waking state to the state of suggested sleep were first objectively registered by E. Gize and A. Lazursky in 1900. The reactions of the pulse and respiration arising in the subject during emotional experiences suggested to him in a hypnotic state were first recorded by A. Lazursky in 1901. Objective signs of changes in the cutaneous pain sensitivity caused by corresponding verbal suggestion produced under hypnosis were obtained by V. Bekhterev and V. Narbut in 1902. Objective data of the reactions on the part of the pulse and respiration under the same conditions were secured by V. Sreznevsky in 1920.

Investigations in this direction were conducted abroad by the Nancy physiologist Beaunis in 1889. These investigations established that verbal influence affected the pulse rate (acceleration and deceleration of the latter) in the waking state. Mention should also be made in historical succession of O. Vogt's studies (in the nineties) of the reaction of the vessels and the motor system to verbal suggestion in a hypnotic state. We must also mention the investigations of Weber (1910) and Mohr (1910), et al., who used the hypnotic state for verbal suggestion of various ideas and emotional states with the reactions of the respiratory, vascular and motor systems serving as objective indices. But none of these investigations were of a systematic nature or adequate, for the studied phenomena and facts to be recognized as firmly established. Nor did they clarify the physiological mechanisms of their development.

All this impelled us to undertake a number of systematic laboratory studies in this direction. We studied mainly the vegetative reactions as the most objective.

We conducted these studies on persons of both sexes, mainly very susceptible, with a rapidly developing state of suggested sleep and easy effectuation of various verbal suggestions in this state and partly in the waking state (so-called somnambulists).[1]

With the exception of one patient suffering from affective epilepsy, not one of our subjects had any pathological symptoms. Thus, S., 42 years old, was studied many times and was known to us for a period of twenty years. She had a well-balanced nervous system and never manifested any neurotic reactions. In a word, none of our subjects belonged to the category of "very hysterical people" in whom alone, as it is erroneously believed, all sorts of hypnotic phenomena can be produced.

In this case, we proceeded from the fact that the idea of human "hypnosis" or suggested sleep, which arose empirically in our days, received exhaustive experimental confirmation in Pavlov's theory in which the teaching on hypnosis is closely linked with the teaching on sleep.

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[1] From the Latin words *somnus*—sleep and *ambulare*—to walk; somnambulism literally means walking in sleep; figuratively, it means an easy ability to lapse into the somnambular phase of hypnosis which ensures manifestations of the most diverse reactions to verbal suggestion both under hypnosis and after the trance.

Basing ourselves on these Pavlovian premises we attempted to obtain experimental proof of the fact that the word as a conditioned stimulus can really produce changes corresponding to its content in the human organism. In part, the word "sleep!" can put the cerebral cortex of man into a state of partial inhibition corresponding to the state of suggested sleep, during which considerable endocrine and vegetative changes really take place in the human body similar to those that occur during its transition to the state of natural sleep.

But before we proceed to a systematic exposition of these data, we shall first have to dwell on a special consideration of the principal premises of Pavlov's teachings on sleep and suggestion.

The solution of the problem of sleep and hypnosis, on the one hand, and hypnosis and suggestion, on the other, by Pavlov's school is one of its most brilliant achievements.

CHAPTER II

SLEEP, HYPNOTIC PHASES, SUGGESTION

> ... The waking state is not, as we are accustomed to think, opposed to sleep.... All the frequently astounding phenomena of human hypnosis are, apparently, a comprehensible result of some division of the cerebral hemispheres into sleeping and waking parts.
>
> *I. Pavlov*

I. Pavlov built his cortical theory of sleep on the materials obtained while observing the development of sleepiness and sleep in experimental animals (dogs) during experiments on conditioned reflexes. Basing himself on numerous experimental data, Pavlov came to the conclusion that the main part in the onset of sleep was played by the higher division of the central nervous system, namely, the cortex of the cerebral hemispheres and, moreover, that there was no special "sleep centre."

Moreover, if conditions which lead to exhaustion of the excitable substance of the cortical cells are created in the waking state, while these cells are in a state of normal functioning excitation, the process of excitation is replaced by a contrary process of inhibition during which the efficiency of the cells has a chance to be restored. Thus, internal inhibition prevents the cells of the cerebral cortex from further functional exhaustion. Pavlov considers the latter as the chief impetus in the appearance of a special process of inhibition in the nerve cells, an *economical* process which not only limits further functional destruction, but also aids in restoring the spent excitable substance.

The significance of inhibition as a restorative factor is especially emphasized by the works of G. Volborth (1951) and his associates. While studying the problem of the relations between the processes of exhaustion and restoration, he arrived at the conclusion that the development of the processes of inhibition "undoubtedly aided restoration."

Natural sleep is precisely such internal inhibition spread over the entire cerebral cortex: internal inhibition and sleep are the same process; "... sleep," Pavlov says, "is inhibition spread over large areas of the

hemispheres, over the entire hemispheres, and even lower over the midbrain."[1] Since internal inhibition is an active process, Pavlov calls the sleep developing under these conditions active sleep.

I. Pavlov considers the accumulation of metabolites in the cortical cells directly responsible for the development of sleep. He observes that "the internal stimuli of inhibition include the humoral element, consequently, some products of the work of the cells"[2] which produce this inhibition. Investigations conducted in Pavlov's laboratories have shown, however, that sleep may also arise under other conditions. Thus, the onset and development of sleep inhibition is favoured by the absence of external and internal inhibitions which may create points of excitation in the cerebral cortex and thus impede the spread of the inhibitory state over the cerebral cortex.

If the inhibitory process does not encounter any resistance on the part of the stimulatory process it "spreads over the cerebral hemispheres and passes to the lower portions of the brain, conditioning a total and passive, sleeping state. . . ."[3] Pavlov calls the sleep arising under these conditions passive sleep.

In the absence of strong excitation centres in the cerebral cortex weak monotonous stimulations of one of its analysers may act as hypnotic agents. Research in Pavlov's laboratory has shown that weak tactile and temperature stimulations are particularly efficient in this respect.

As a matter of fact, we very well know that monotonous, lengthy and rhythmic sounding of a lullaby, the ticking of a clock, the rustle of trees, the rhythmic and protracted stimulation by a weak source of light, or long-continued rocking which stimulates the vestibular apparatus of the internal ear, and stroking some part of the body—all invariably aid in the development of sleep inhibition in the stimulated cortical cells. From here, the inhibitory state spreads over the neighbouring cortical cells gradually embracing the entire cortex and causing sleep inhibition of the whole mass of the cerebral hemispheres and the subcortex.

I. Pavlov believes that, by virtue of this, all people, especially those who lead no particularly intensive intellectual life, are unable to resist sleepiness and fall asleep under monotonous stimulation however untimely or out of place this may be. The state of sleep arising in one or several cells does not, under these circumstances, remain there but spreads and embraces not only the hemispheres, but also the lower divisions of the brain. This state is a state of total sleep, as distinguished from partial sleep, which we shall discuss later.

The aforesaid phenomenon of irradiation of inhibition is pronounced the stronger, the weaker the tone of the cerebral cortex, whatever the reason. The physiological mechanism of this phenomenon consists in the fact that the cortical cells reacting to long-continued external stimulus sooner or later lapse into a state of inhibition. Encountering no resistance

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz (Medical Literature) Publishing House, Russ. ed., 1951, p. 246.

[2] *Ibid.*, p. 482.

[3] *Ibid.*, p. 264.

on the part of the other active points of the cerebral cortex the inhibitory process spreads and conditions sleep.

It will be observed that even under conditions of complete waking, the irritable state of some cells of the cerebral cortex is always connected with the inhibitory state of others. The individual sections of the cerebral cortex in any particular state constitute a complex mobile mosaic, these small sections of inhibition creating a mobile local, "broken-up" sleep. With the presence of more or less extensive inhibitory sections in the cerebral cortex (and only separate waking points or regions among them), a state of partial sleep is created. Thus, I. Pavlov distinguishes three degrees of extensiveness of sleep: total, partial and "broken-up."

It will be noted in conclusion that the hypnotic factors also include prolonged restriction of the freedom of movement. Thus, some dogs in I. Pavlov's laboratories tied in a stand and remaining immobile for a long time fall asleep soon after the beginning of the experiment. In some cases, sleep inhibition may, contrariwise, develop under the influence of short and strong stimuli. As I. Pavlov himself describes it (1927), while the animal resisted as it was being prepared for the experiment, a sudden restriction of its movements by strong hands which imparted considerable mechanical stimulation to it immediately put it to sleep. In this case, the onset of sleep was, apparently, connected with the mechanism of transmarginal inhibition (analogy with "old hypnosis"of animals).

What, then, happens in the opposite case, i.e., as a sleeping person *awakens*?

I. Pavlov gives us the answer: "... in order to exclude sleep, inhibition must be restricted by contrary stimuli,"[1] because "the waking state is maintained by more or less rapidly changing stimuli acting on the cerebral hemispheres mainly from the external world. . . ."[2] Because of this, waking represents a phenomenon of more or less extensive irradiation of the stimulatory process in the cerebral cortex with its mobile concentration at definite points and induction relations between the processes of excitation and inhibition.

Let us examine one more phenomenon, i.e., conditioned reflex sleep which is particularly important to us. Everything that coincides many times with the development of sleep, itself begins to aid in its onset. Thus, some laboratory animals, daily finding themselves in the same room during the experiment and falling asleep in the stand, immediately fell asleep as they were brought into this room and placed in the stand. According to Pavlov's testimony the dog was hypnotized by the situation alone: a very lively and shifty animal completely changed as soon as it crossed the threshold of the room and grew increasingly sleepy as it was placed in the stand and made ready for the experiment. This observation revealed the possibility of developing sleep inhibition in the cerebral cortex by conditioned reflex means without its preliminary fatigue.

This is also attested to by V. Krylov's experiments conducted in Pavlov's laboratory (1925): by repeatedly ingesting a warm solution of a soporific

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 264.

[2] *Ibid.*, p. 236.

dose of chloral hydrate into the rectum of dogs for a number of days, Krylov made the dogs fall fast asleep. After several repetitions the ingestion of warm water alone (without chloral hydrate) into the dogs' rectum or even the procedure of preparing for the ingestion of water alone began to make the dogs sleepy and then fall asleep. In both cases, sleep developed under the influence of stimuli which had formerly been indifferent (in the first case the surroundings of the experiment, in the second—water and the procedure).

Thus, sleep arose according to the conditioned reflex mechanism without the preceding fatigue of the cortical cells, and as a result of combining the hypnotic and indifferent stimuli the latter acquired all of the properties of the former. A. Ivanov-Smolensky (1928) combined soporific stimuli (protracted rhythmic, light and heat) with a sharp sound of a bell after which a conditioned sleep reflex arose in response to the sharp sound.

Thus we see that the hypnotic conditioned stimuli may widely vary and the transition to sleep and the awakening may occur according to the conditioned reflex mechanism. In man, this manifests itself, for example, in the form of a habit of falling asleep under definite conditions, at a definite hour and in a definite position. It is well known that a child accustomed to falling asleep in the arms of its mother cannot fall asleep in bed or in the arms of another person for a long time, etc. In a human adult the idea of the habitual soporific situation alone may, under corresponding conditions, frequently cause the onset of sleep.

According to Pavlov's theory, sleep inhibition may be partial in depth and extensiveness and develop only in restricted sections of the cerebral cortex. One part of the cerebral cortex may be in a waking state and the other in a state of sleep inhibition, for example, during the transition from the waking state to sleep.

Under conditions of laboratory investigations, which lead to the development of a hypnotic state in dogs, the latter show various degrees of inhibition, for example, in the form of a discrepancy between the secretory and motor components of the food reflex. Thus, under conditioned stimulation (sight and odour of food), saliva flows abundantly but the dog does not take any food. Here the partiality of sleep manifests itself in inhibition of the motor function while the secretory function is retained. The partiality of sleep may also express itself in the spread of inhibition only to the cerebral cortex without passing lower to the subcortical region. This leads to the phenomenon of catalepsy which manifests itself in the fact that any position imparted to an extremity of the animal or man remains unchanged for an indefinite period of time.

As to the extensiveness of inhibition, partial sleep is most vividly shown in B. Birman's experiment (Pavlov's laboratory, 1925).

A conditioned food reflex in response to a strictly definite sound of an organ pipe of 256 oscillations per second, from which the sounds of another frequency were differentiated, was developed in the dog. Under the influence of a prolonged differentiated inhibition the dog fell fast asleep, showing no reaction to any other organ-sound stimuli. But it woke up and took food to the sound of the pipe with 256 oscillations. The definite sound of the pipe was thus a signal for the awakening and food taking, the strictly

differentiated conditioned reflex reaction to this signal stimulus developed in the waking state being retained also during sleep.

Thus, a waking section of the cerebral cortex was formed, which I. Pavlov named the "sentry post." Being positively inducted, under the influence of the inhibitory state of the surrounding sections of the cerebral cortex, this "sentry post" is in the state of increased excitability ("under the influence of the onslaught of inhibition," according to I. Pavlov's expression) which ensures the maintenance of its connection with the external environment.

This offers a physiological substantiation of many facts known from life. We know, for example, that a tired mother fast asleep at the bedside of her sick child and indifferent even to loud sound stimuli, easily awakens from the slightest sound produced by her child. A miller who sleeps peacefully during the normal noise of his running mill awakens the moment the mill begins to run idle (the changed noise of the mill wheels is a signal for the waking "sentry post" of his cerebral cortex about the necessity of charging the mill with a new portion of grain). A person who went to sleep in the evening with the idea of getting up at a definite hour in the morning really awakens at that time. All these are phenomena of the very same conditioned reflex order, cases of partial sleep with the "sentry post" awake in the cerebral cortex. But, of course, as soon as the sleep inhibition also spreads to the waking centre, the connection with the external world is lost and the partial sleep becomes total sleep.

In the animal world the phenomenon of the "sentry post" not infrequently ensures the security of the sleeping animal. Thus, according to L. Orbeli's observations (1935) when the octopus mollusc is asleep seven of its appendages entwine themselves around the body while the eighth appendage remains straight, slightly moving and keenly reacting to the external stimuli. Moreover, any contact with it immediately awakens the animal and the latter at once discharges a black pigment and generally displays an active defensive reaction.

In other cases, the sleep of the herd is guarded by a sentry animal which keenly reacts to all signals of possible danger. Moreover, if the sentry animal produces a special sound, the herd immediately awakens and flees, while all other sounds and rustling, however loud, do not trouble the sleeping herd (V. Speransky, 1923). Thus, the phenomenon of partial sleep with the retained "sentry post" assumes biologically great importance ensuring the necessary communication of the sleeping animal with the external environment.

As examples of partial sleep we can cite cases of sleep while walking, horseback riding, as well as pathological night sleep-walking.

Generalizing all the aforesaid, I. Pavlov observes that "the waking state of the animal always includes partial sleep and precisely in the subtlest relations of the animal with the outside world"; moreover, "in the sleeping state there are always waking, active points in the cerebral hemispheres, which are, as it were, sentries on duty."[1]

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 230.

Pavlov's school discovered one more important phenomenon, namely, that during the transition of the cortical cells from an active state to a state of inhibition, the inhibition does not arise in them all at once, but gradually. Before the onset of complete inhibition a number of intermediate (phasic) states are observed in the cells; these states differ in intensity of the inhibitory process embracing them. This is also true of the reverse transition of the cells from the state of inhibition to the active state. It has revealed a very important aspect which has not only elucidated the physiological essence of hypnosis of animals and man, but, as we shall see later, has also enabled us to substantiate physiologically a number of normal and pathological phenomena of higher nervous activity.

During the development of such transitory states between waking and sleep, we observe changes in the relationships of the cortical cells to the conditioned stimuli depending on the degree of their inhibition. Whereas in the waking state with a normal tone of the cerebral cortex the strength of excitation of the cortical cell corresponds to the strength of the stimulus (law of force relations), during the rise of transitory states this law is violated. Thus, during the equalizing phase the weak and strong stimuli begin to provoke reactions of equal force. In the following transitory phase, the weak stimuli provoke a strong reaction, while the strong stimuli produce a weak reaction (or no reaction at all). I. Pavlov called this the paradoxical phase. This phase is followed by the ultra-paradoxical phase during which the negative conditioned stimuli begin to provoke a positive reaction in the cortical cells, while the positive stimuli provoke no reaction. Still deeper inhibition of the cortical cells gives rise to the so-called narcotic phase in which there is an equally weakened reaction to all stimuli while the force relations are retained.

Lastly, during total inhibition of the cortical cells, which corresponds to the state of deep sleep, the reaction to all usual stimuli is completely absent. In this case, it is necessary to use various strong stimuli (jolts, a loud call, etc.) in order to awaken the sleeper.

Arising during the lapse into sleep or, on the contrary, during awakening, the phasic states may be distributed through the cerebral cortex unequally, being localized now in one and now in another section. Pavlov named such transitional phasic states "hypnotic."

The existence of phasic states in man under hypnosis has been proved by the method of conditioned reflexes in the studies of Y. Povorinsky and N. Traugott (A. Ivanov-Smolensky's laboratory, 1936), in a series of investigations conducted by N. Krasnogorsky (1951) and in the research of F. Maiorov's laboratory (1939). It will be observed that, according to N. Krasnogorsky (1951), the phasic states may be localized in various analysers during the general optimal excitability of the cortex.

Phenomena of suggestion and suggestibility, sometimes quite important in the life of man, are closely connected with the hypnotic (phasic) state of the cerebral cortex.

We encounter two facts: the possibility of influencing man's higher nervous activity by verbal suggestions of another man and the possibility of autosuggestions which under certain conditions may become "predominant, irregular and irresistible" (I. Pavlov).

What are the physiological mechanisms underlying verbal suggestion or autosuggestion?

Pavlov observes that suggestibility is based on an easy transition of the cortical cells to an inhibitory state. The basic mechanism of suggestibility is connected with the dissociation of the normal, i.e., unified, work of the entire cortex. The suggested is, therefore, not subject to the usual influences of the remaining parts of the cortex.

It must thus be assumed that the basic physiological condition for suggestibility is a lowering of the tone of the cerebral cortex and a functional division of cortical activity easily arising at this time.

According to Pavlov's classical definition the phenomena of suggestion and autosuggestion are based on a concentrated excitation in the cerebral hemispheres which has become predominant. Pavlov says that "it exists and acts, i.e., it acquires motion, finding expression in a particular motor act not because it is supported by various associations, i.e., bonds, with many real and old stimulations, sensations and ideas, when it is a firm and rational act as it should be in a normal and strong cortex, but because *in a weak cortex with a weak, low tone, concentrated as it is, it is accompanied by a strong negative induction which has severed it, isolated it, from all the necessary extraneous influences.*"[1] (Emphasis by the author.)

It must be remembered that in a state of hypnosis the cerebral cortex has a lowered positive tone because of irradiated inhibition. "When the word, the order of the hypnotizer, is directed as a stimulus to a definite point of such a cortex, this stimulus concentrates the stimulating process in the corresponding point and is immediately accompanied by a negative induction which, owing to the slight resistance, spreads over the entire cortex, for which reason the word, the order, *is absolutely isolated from influences and becomes an absolute, overwhelming, fatally acting* stimulus even later when the subject returns to the waking state."[2] (Emphasis by the author.)

In the light of these Pavlovian definitions the former statements of psychoneurologists acquire a new meaning. Thus, observing that some people influenced the behaviour of others by a personal example, direct order, persuasion and suggestion, V. Bekhterev (1898) wrote that "despite verbal suasion usually influencing the other person by the force of its logic and indisputable proofs the suggestion acts by means of direct inculcation . . . of ideas, feelings and sensations, demanding no proofs and requiring no logic at all." Bekhterev believed that "this could take place both intentionally and unintentionally" and "sometimes entirely unnoticeably for the person receiving the suggestion"; it sometimes also happens with his knowledge and "with his more or less clear consciousness." However, if the given person has a limited life's experience and practical knowledge, the use of any logical suasions does not usually strike home, whereas direct verbal suggestion, like a direct order, "nearly always produces results" in these cases.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, pp. 376, 377.

[2] *Ibid.*

V. Bekhterev furthermore emphasized that if *intentional suggestion* in the waking state "in a more or less sharply pronounced degree does not succeed in every case" we observe an entirely different picture when we deal with *absolutely unintentional suggestion* made during the natural associations of one person with another. This involuntary suggestion "occurs unnoticeably for the person whom it influences and does not, therefore, cause any resistance on his part." True, according to Bekhterev, it rarely acts immediately; more often it acts slowly but then is "sure to be fixed" in the psychic sphere.

At the same time, according to Bekhterev, "suggestion or inculcation of psychic states plays a particularly important part in our education," at least until the developing thinking of the child enables him to "master logical inferences no less than the ready-made products of the mental work of others."

According to P. Dubois (1911), suggestibility "exerts a particular influence on all our deeds, colours our sensations, serves as a source of constant illusions against which it is very difficult to protect oneself even with the greatest possible effort of the mind."

Y. Kannabikh (1928) observes that we can speak about suggestion only when the given demand normally encounters resistance by being criticized whereas now "it is *effected blindly* because all the opposite tendencies in man's psychical apparatus are retarded. *To provoke such a retardation in man, to make him act without reasoning, is really to make a suggestion.*" (Emphasis by the author.)

Suggestibility expresses itself in a greater or lesser subordination of the higher nervous activity of one man to the verbal influences of another carried out, however, not on the basis of reasoning, i.e., logical motivation, but *by means of absolutely unaccountable* subordination to influence. Man himself is not clearly aware in these cases of his subordination and continues to consider his actions a result of his own initiative. Nevertheless, suggestibility is one of the normal manifestations of the higher nervous activity of man. However, *excessive* suggestibility during which the critical, conscious activity of man with his "rational inferences" is opposed to the "unlawful and overwhelming" (I. Pavlov) domination of the verbal influence of another person is already an *abnormal* phenomenon.

Moreover, increased suggestibility is a sign of relative weakness of criticism and inadequate judgement (logical thinking), i.e., diminished function for some reason or other of the second signal system against the background of a lower tone of the cerebral cortex.

Thus, the picture of suggestibility shows one of the most important features in the activity of the second signal system of the human cerebral cortex: increased sensitivity to the direct influence of the word.

An important feature of suggested sleep is the increased suggestibility which arises in this state, i.e., a greater possibility that the direct influence of verbal suggestion of a corresponding content will form in the cerebral cortex new centres of concentrated stimulation, new temporary bonds and new dynamic structures and will, naturally, revive (or, on the contrary, remove) the old bonds and structures. In this case, the effectuation of the suggested state (perception, action) takes place without the active, i.e.,

critical treatment of all that has thus been perceived, assimilated and executed.

Suggestion is also quite possible in the totally waking state since there are people to whom, under certain conditions, suggestions can be made in the waking state as easily as under hypnosis.

Lastly, the *paradoxical* phase is essential. It is no accident that I. Pavlov called the paradoxical phase the "phase of suggestion." "I think," he said, "that our paradoxical phase (in laboratory dogs.—*The author)* is a real analogue of the particularly interesting phase of human hypnotization, the phase of suggestion, when the ***strong stimulations of the real world give way to the weak stimulations coming from the words of the hypnotizer.***"[1] (Emphasis by the author.)

The studies by S. Levin (1934), by the method of conditioned reflexes in N. Krasnogorsky's children's clinic, can serve as an illustration of the significance of the lowered positive tone of the cerebral cortex which aids in increasing suggestibility. A verbal suggestion of eating apples, made under hypnosis, evoked in children two and three times as much salivation as the same suggestion did in the waking state.

Some of our observations concerning distorted reactions (Chapter VII) may apparently serve as an illustration of the significance of the paradoxical phase.

Pavlov attaches importance to increased suggestibility under conditions of the paradoxical phase also in daily life. "We can presume," he said, "that it (paradoxical phase.—*The author)* makes itself felt also in normal people who yield more to the influence of words than to the facts of surrounding reality."[2]

Finally, the meaning of the word, i.e., its semantics, is particularly important for the effectuation of verbal suggestion: I. Pavlov said (1927), "the wide purport of the word makes it clear why suggestion may provoke in the hypnotized person so many various actions aimed both at the external and internal world of man."[3]

Hence it is clear that for the second signal system the idea of the strength of the stimulus is, in the final analysis, determined by the social (semantic) significance of the word acquired by the given person in his past life experience. On the physiological side the degree of suggestibility is determined by the degree of the lowered tone (working excitation) of the cerebral cortex at the given moment.

It will be noted that the tone of the cerebral cortex may be lowered not only by the sleep inhibition spread over it but also by such a general factor as a weak or weakened type of nervous system, as well as by fatigue, exhaustion of the cortical cells, protracted negative emotion, especially if the depressed state of the cortical cells connected with it lasted for a considerable length of time.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 282.

[2] I. Pavlov, *Lectures on the Work of the Cerebral Hemispheres,* Russ. ed., 1927, p. 358.

[3] *Ibid.,* p. 358.

In connection with this, I. Pavlov observes (1927) that "what is psychologically called fear, cowardice and timorousness has as its physiological substratum the inhibitory state of the cerebral hemispheres and represents various degrees of the passive defence reflex" which stands "in a definite relation to the hypnotic state"[1] frequently hardly distinguished from the waking state, i.e., without any external manifestations of hypnosis.

Resistance to suggestion is offered by the more or less unified work of the entire cerebral cortex, its high tone and possession of life experience based on firm, verified knowledge, i.e., on inferences approved by practice.

Thus, suggestibility is not unconditioned but is conditioned, not stable, but highly dynamic. Moreover, the type peculiarities of the nervous system not adequately known as yet, are apparently of great importance.

It will be observed that it is necessary to delimit phenomena connected with the conscious perception of the word and its suggestive influence. Dubois was, apparently, the first to point out the necessity for clearly delimiting the conceptions of suggestion and persuasion which before him had usually been confused. In addition, according to Verworn "suggestion is an artificially produced idea arising without the control of criticism and accepted by force of it almost blindly."

A. Forel (1928) emphasizes that "*we must not regard the influence of one man on another by reasoning as a suggestion.*" (Emphasis by the author.) "Incidentally," he makes a reservation, "there are various transitory stages from this influence to a perfectly unconscious real suggestion."

Y. Katkov (1938) correctly observes in one of his studies that there is a dialectical relationship between the conscious perception of speech and its suggestive influence. Verbal influence perceived critically *cannot be suggested,* because it is perceived consciously, actively. On the other hand, verbal influence perceived passively without criticism, may easily become *suggested,* even though it may contradict past experience and be severed from present reality.

As a matter of fact, verbal influence actively perceived by the waking cerebral cortex is inevitably reshaped by the latter and, in particular, it immediately forms temporary bonds with the numerous trace reactions of past experience. In passive perception this active reshaping is absent and the conditioned reflex bond in the cerebral cortex is coupled irrespective of whether the content of verbal influence corresponds to the data of past and present experience or contradicts them.

The *passivity* with which the content of the verbal influence is perceived may be due to the high authority of the speaking person, or to the affectiveness with which these words were said or, lastly, to the lowered tone of the cerebral cortex weakened by disease, fatigue, somnolence, etc. The best method of struggle against suggestibility is, therefore, the maintenance of an active state of the cerebral cortex under waking conditions and, of course, the presence of corresponding cortical dynamic structures or systems based on the personal experience of the person and ensuring a *critical* attitude to the content of the verbal influence.

[1] I. Pavlov, *Lectures on the Work of the Cerebral Hemispheres,* 1927, pp. 339-360.

It follows that all forms of independent activity must be cultivated to the greatest extent.

On the whole, the conscious perception of speech and its suggestive influence create in the corresponding points of the cerebral cortex centres of excitation, dynamic structures capable of prolonged persistence after the direct perception of speech has already ceased. We know how long all that has been consciously perceived is retained by the memory, especially during high emotional excitement coming from the closest subcortex. In addition, we know how prolonged the action of post-hypnotic suggestion may be by the example of deferred effectuation of the latter.

At the same time the suggestive influence sometimes permeates the processes of conscious perception. The following example is cited for illustration.

When a physician analyses the condition of the patient, the latter takes it quite consciously and may treat the physician's inferences more or less critically. But when the physician prescribes a medicine, and the patient knows neither its composition nor the role or significance of its dosage (unless, of course, he is a physician himself), the patient *simply trusts the physician.* Thus, conscious perception is in this case replaced by the suggestive influence: "This medicine will do you good."

If we follow this course, the preparation of the medicine by the druggist does not evoke any doubts in the patient either. In this case he is also subject to the suggestive influence: "The druggist always prepares precisely what the doctor prescribes."

It will be noted that the suggestive influence may take the form of either direct or indirect (intermediate) suggestion.

Direct verbal suggestion is effected by the immediate influence of the speech itself which carries a definite meaning and imperativeness to the higher nervous activity of man, i.e., the second signal system, and through it to the first signal system and the subcortex, and thence to the entire somatic and endocrine-vegetative activity.

The effectiveness of direct verbal suggestion depends:

a) on the given functional state of the cerebral cortex of the person subject to the suggestion, this state determining the *degree of suggestibility,* and

b) on the *meaning* of the suggested verbal complex.

The suggested state or action is usually effectuated *immediately* after the verbal suggestion and as a direct reaction to it. Thus, if it is suggested to the subject that he is enjoying a feeling of pleasant rest or that a mosquito that bit him is perched on his hand, etc., the suggestion is effectuated at once.

In direct verbal suggestion, the cerebral cortex is influenced only by the word itself (verbal stimulus) in its pure form utilizing physiological mechanisms of direct influence of the word on the second signal system and through it on the first signal system and on the subcortex.

In content, a direct suggestion by word may be either simple and short (for example, expressed in the form of a command: "Sleep," "Rest," "Wake up," etc.) or more or less complicated and logically grounded (motivated suggestion), for example, for changing the attitude of the patient towards certain conditions of the environment, for guiding his future acts, etc.

It will be observed that the content of verbal suggestion must not oppose the moral principles of the subject because otherwise, as experimental studies have shown, it is not effectuated even if the verbal suggestion is made under hypnosis. If this type of suggestion is persistently and stubbornly repeated it may give rise to a neurotic reaction and, in a severe case, to a derangement of the higher nervous activity and a subsequent neurotic state.

In *indirect verbal suggestion* the effectuation of the suggestion is, as a rule, related to a particular object or influence by means of which the suggestion must actually be effectuated. Thus, for example, a waking subject is told that the indifferent white powder offered to him is a soporific. The subject therefore falls asleep as soon as he takes the given powder.

In indirect verbal suggestion the complex centre of concentrated excitation created by this suggestion in the cerebral cortex is related not only to the content of the suggested word but also to the object (or the time and place) in the presence of which the suggestion will have to be effectuated. For this reason V. Bekhterev (1911) calls such suggestion intermediate. He says that in suggesting through objects "we do not act directly by the suggestion itself, but link the latter with a definite object due to which the suggestion is effectuated in connection with the given object." Accordingly, the formerly indifferent stimulus acquires for the given period a definite conditioned reflex significance. It follows that indirect verbal suggestion is based on the formation of a conditioned bond between the stimulus of the second signal system (the words of suggestion), the stimulus of the first signal system and the realization of the suggested effect (which provokes certain phenomena or acts), each of these three elements having definite direct cortical bonds with the past experience of the subject. By virtue of this, two interconnected centres of excitation arise essentially in the cerebral cortex simultaneously; one of these is created in the second signal system by the words of the suggestion, and the second is formed in the first signal system by the stimulation by which the suggestion is to be effectuated.

At the same time, in an indirect suggestion the moment of execution of the suggestion may be *postponed.* Thus, the execution of the suggestion is connected not only with a definite object (or word, or place) but also with a definite time for which it will be set. By force of this *the very fact of the suggestive verbal influence recedes, as it were, into the background.* In other words, the suggestion by word *becomes latently active.* The object-verbal complex, thus created, may involve a number of analysers and necessarily the first and second signal systems; there may be conditioned reflex bonds which arose at one time in the past experience with each of these analysers. *It is precisely the conditions under which the suggestion is effectuated* that are of prime importance in this case, because they help in reducing criticism and sometimes make possible a direct uncritical attitude to the suggested state or action. This circumstance was reflected in A. Forel's well-known words: "Suggestion is the stronger the more *concealed* it is" (in other words, the more indirect it is).

Indirect suggestion may be successfully used with the subject awake; its suggestive influence is much greater than that of a direct suggestion. It frequently exerts an effective influence on people who do not yield to direct

suggestion as was pointed out by V. Bekhterev, A. Forel, F. Löwenfeld, et al.

Observations of authors also tell us that cases of unintentional, indirect (intermediate) suggestions are extraordinarily widespread in everyday life and therefore have a certain significance.

It must be admitted that phenomena of autosuggestion also play quite a definite part in man's daily activity.

Autosuggestion may be defined as a phenomenon of suggestive action on the part of the trace cortical processes connected with stimulations of the second signal system.

I. Pavlov believes that the force of autosuggestion is determined by the degree of concentration of excitation in a definite region of the cortex. In certain cases with a lowered cortical tone the limitation of the excitatory process may be accompanied by a very strong inhibition of the remaining divisions of the cortex which, as I. Pavlov puts it, represent the "basic interests of the entire organism, its integrity and its existence." Suggestion or autosuggestion may be so potent that under certain conditions "the organism may even be destroyed without putting up the least physiological struggle." As an example Pavlov cites the state of various religious fanatics: "If the historical fact that the Christian martyrs not only patiently endured but even gladly submitted to suffering is true, we have a vivid proof of the power of autosuggestion." He observes that "...from the physiological point of view we can easily understand the partial impairments of the integrity of the organism produced by suggestion and autosuggestion, which is now also proved by trophic innervation."[1]

Autosuggestion may give rise, for example, to symptoms of imaginary pregnancy in which a number of complex vegetative-endocrine changes occur in the woman's organism under the influence of the stimuli connected with the second signal system and lead to the appearance of external signs of pregnancy (active state of the mamae, deposits of fat in the abdominal walls, etc.) resulting in a simulation of pregnancy.

In other cases, autosuggestion produces phenomena of stigmatization (in Catholic religious fanatics) in the form of definite changes in the skin, etc.

What are the physiological mechanisms underlying the phenomena of autosuggestion?

As we know, given certain influences on the cerebral cortex from the external or internal environment, as well as a certain "charge from the subcortex," the traces of temporary cortical bonds, including those of intense past emotional states, may be revived, due to which new temporary cortical bonds (secondary in relation to them) may arise and be consolidated on their basis. All this manifests itself to the greatest extent when the positive tone of the cerebral cortex is low. In this case its analysing activity is also sharply reduced because a fine analysis requires sufficiently high tension of both nervous processes—excitation and inhibition.

In the activity of the second signal system this weakening of the analysing function expresses itself in a *diminution of criticism.* This creates the conditions which facilitate the appearance in the second signal system of

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, pp. 379-380.

new bonds insufficiently reinforced not only by the first signal conditioned bonds, but even by the unconditioned facts of reality. Speaking of the second signal system Pavlov repeatedly warned that "numerous verbal stimulations . . . have removed us from reality and we must therefore constantly remember this in order not to distort our relations with reality."[1]

Under certain conditions, therefore, second signal *trace* processes may dominate over the real influences of the external environment. The *act of autosuggestion* is one of the direct results of this. It is formed when the coupling function is effected in the second signal system not under the control of conscious perception, but, as Pavlov aptly puts it, "it no longer considers reality or hardly considers it and is subject mainly to the emotional influences of the subcortex."[2]

Hence, it is clear why the act of autosuggestion acquires a predominant significance. It is absolutely isolated from all influences and consequently becomes an absolute and strongly acting stimulus. Phenomena of autosuggestion may influence not only the entire character of higher nervous activity, but also the activity of the animal endocrine-vegetative system.

The phenomena of autosuggestion, the mechanisms of which have now been physiologically substantiated by Pavlov's theory, must therefore be regarded as of greater importance than has been the case until now.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 457.

[2] *Ibid.*, p. 381.

CHAPTER III

SUGGESTED SLEEP

> The word of him who begins to hypnotize... under a certain degree of inhibition developing in the cerebral cortex by concentrating the stimulation in a certain narrow region, according to the general law, at the same time evokes a naturally deep external inhibition... throughout the remaining mass of the hemispheres and thus excludes any competing influence of all other present and old traces of stimulations.
>
> *I. Pavlov*

Historically, the study of hypnosis and verbal suggestion in a hypnotic state was begun in the forties of last century by the British surgeon Braid. A deeper study of the phenomena of hypnosis and suggestion was made in France in the seventies of the same century, these questions being treated in the works of Charcot in Paris and Bernheim in Nancy.

The studies made by Charcot attracted the attention of physicians of many countries. Charcot produced a hypnotic state by sudden short strong (or prolonged weak) stimulations of the sense organs of sight, hearing and touch. He attached only secondary importance to verbal suggestion. The studies were made on twelve patients suffering from hysteria and the external resemblance of the hypnotic states to the hysterical led Charcot to the incorrect conclusion that the "phenomena of hypnotism are an artificially produced hysterical neurosis" and that these phenomena "may be produced only in people suffering from hysteria."

A broader point of view was expressed by Bernheim, professor of Nancy University, who thought that hypnotic phenomena were based on suggestibility which was inherent in the normal human mind, while hypnosis was suggested sleep which may vary in depth and may be produced in most healthy people by verbal suggestion. Bernheim established that suggestibility was particularly enhanced during the deepest, so-called somnambulistic stage of hypnosis during which it was possible to make verbal contact with the sleeper. This stage is characterized by amnesia after awakening, i.e., forgetfulness of all that occurred in the hypnotic state.

Bernheim's school was the first to show that many phenomena of suggestion could be produced in some people in the waking state as well.

Since Charcot studied the phenomena of hypnosis in hysteria patients and Bernheim in healthy people, these two investigators arrived at different theoretical conclusions, subsequently forming the bases of two opposing schools of hypnosis—the Paris school of Charcot and the Nancy school of Bernheim. Charcot's followers continued, like Charcot himself, to regard hypnosis (according to their terminology—"hypnotism") as an artificially produced hysterical state, i.e., a pathological phenomenon. Bernheim's school began to define hypnosis as suggested sleep, i.e., a normal physiological phenomenon. However, there was no agreement among the numerous investigators adhering to the Nancy school of psychology on the question of the essence and mechanisms of suggestion and hypnosis.

At the end of the 19th century hypnosis and suggestion were studied by many investigators, including biologists, psychologists, physicians, teachers, et al. They accumulated enormous and diverse factual material; they raised problems about the nature of the hypnotic state, the mechanism of its development, the essence of suggestion, etc. The likening of hypnosis to usual sleep by certain investigators was not sufficiently convincing to many others. It was still unclear what the hypnotic state actually was, whether it was a normal or pathological state, whether it was beneficial or harmful and how it could be explained from the physiological or psychological point of view.

The attention of psychologists was particularly attracted by the change in the behaviour of the person put to sleep under the influence of verbal suggestion both in the hypnotic state and after it, and the possibility of influencing the higher processes, i.e., thinking, the sphere of feelings, will, etc., by suggestion. However, not one of the theories advanced at that time offered adequate explanations because the psychological theories of hypnosis were then built on the basis of introspection and other methods of speculative psychology. Thus, according to Mendel, hypnosis was a state of strong stimulation of the cerebrum; Zimssen believed it was a state of depression of the cerebral cortex, while Verworn considered it the highest degree of waking. V. Danilevsky (1888, 1924) regarded hypnosis as a "state of psychoreflex inhibition." According to V. Bekhterev (1911), hypnosis is a peculiar modification of natural sleep.

Thus at the end of the nineteenth and the beginning of the twentieth centuries the problem of suggestion and hypnosis lacked necessary clarity. Wide opportunities for the solution of the problem of suggestion and hypnosis were opened up only by the investigations of I. Pavlov and his school who have created the physiology of the higher nervous activity and on its basis a theory of sleep and hypnosis.

Proceeding to the conditions under which the hypnotic state develops and gives rise to suggested sleep in man, we deem it necessary to point out several ideas connected with these problems and springing directly from Pavlov's theory of higher nervous activity.

Thus, I. Pavlov designates as a *hypnotic state* the state of the cortical cells in the transitional period between waking and sleep inhibition. Therefore, "when the hypnotic state, i.e., the state of inhibition, begins the cor-

tical cells become, as it were, weaker and less efficient with the limit of the permissible, possible excitation lowered."[1]

Hypnotic sleep is a state of the cerebral cortex in which the transitional (phasic) state has already spread over the entire kinaesthetic analyser, the activity of the voluntary innervation has been switched off and the animal (or man) is in a state of motor rest, invariably retaining a posture of sleep and the external appearance of a sleeper, i.e., a living creature in a state of general sleep inhibition. In the given case, however, the hemispheres are not totally inhibited and excited points may form in them. "Consequently," says Pavlov, "in hypnosis we are not dealing with complete sleep but only with partial sleep. This is the difference between hypnotic and natural sleep."[2]

Finally, *suggested sleep* refers to the hypnotic sleep of man produced by verbal suggestion, i.e., by a stimulus of the second signal system of corresponding content. The suggested sleep of man differs from the hypnotic sleep of an animal not only in the way it is induced (verbal suggestion) but also by the presence of the so-called rapport (retained possibility for speech communication with the hypnotist) and by the state of increased suggestibility. By means of verbal suggestion some sections of the speech-motor, kinaesthetic and other analysers may be brought out of the inhibitory state by virtue of which man in the state of suggested sleep may react in various ways corresponding to the content of the verbal suggestion. At the same time suggested sleep is a private case of conditioned reflex sleep: it is conditioned reflex sleep but induced and supported by corresponding verbal suggestion, thus differing (in the mechanism of its development) from the usual conditioned reflex sleep induced by conditioned stimuli of the first signal system.

Thus, under certain conditions and under the influence of verbal suggestion of a corresponding content the waking state may change to a hypnotic state and with the spread of the latter over a considerable portion of the cerebral cortex into a state of suggested sleep. During its further spread and deepening, which leads to the loss of the rapport, the state of suggested sleep in its turn passes into natural sleep. Consequently, the states of waking, hypnotic and natural sleep, qualitatively differing from each other, successively change into each other. It follows that the suggested sleep of man is a private case of his hypnotic sleep, the hypnotic sleep is a private case of the conditioned reflex sleep, while the conditioned reflex sleep is one of the varieties of natural sleep.

Spreading and deepening the internal inhibition produces various degrees of the hypnotic state. The attention is attracted by the variety and numerousness of the hypnotic stages which in the beginning hardly differ from the waking states. The rising functional division of the cortical systems with the partial division of the cerebral cortex into somnolent and wakeful sections manifests itself in the fact that in a definite phase of hypnosis the hypnotized person very well understands and even remembers afterwards what he is told, but is incapable of performing any movements.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 336.

[2] *Ibid.*, p. 484.

Thus, the phenomena of human hypnosis are a result of some division of the cerebral hemispheres into somnolent and wakeful sections occurring under the influence of verbal suggestions.

This phenomenon is perfectly analogous to the hypnotic state of animals characterized by inhibition of only the motor region of the cerebral hemispheres. Reflexes to the eye muscles (the animal keeps its eyes on the experimenter), to the glands (when given food the motionlessly standing animal begins to salivate) and finally tonic reflexes of the midbrain to the skeletal muscles for maintaining the position in which the animal has been placed (catalepsy) are observed in the animal in this state. However, the animal in this state does not show the usual signs of sleep, but is in a state of muscular rest. In this connection I. Pavlov wrote that " . . . observations discover an *ever greater variety of symptoms* of the hypnotic state, its ever finer gradations, frequently hardly distinguishable from the waking state, and an *ever greater mobility of the hypnotic state* depending on the minutest changes in the situation . . . ."[1] (Emphasis by the author.)

Considering the peculiarities of hypnosis in man, I. Pavlov emphasized that the various hypnotic phenomena differ much more in man than in animals because of the greater complexity of the human brain. In the first place, the so-called suggestion attracts particular attention among the hypnotic phenomena in man. In addition, the phenomenon of rapport, i.e., the retention of speech communication between the subject and the medium, is specific of the human hypnotic state induced and supported by the influence of verbal suggestion. Lastly, a "sticking" of cortical cells in a certain "phasic," transitional stage from the active to the somnolent is no less specific of the hypnotic state of man. Because of this, certain phases of the hypnotic state of man remain more or less stationary. It is precisely in this transitional state that the paradoxical phase may occur, during which conditions of heightened suggestibility and effectuation of hypnotic suggestions ("suggestive phase") are created.

We thus see that I. Pavlov was able to reveal many aspects of the physiological mechanisms underlying the hypnotic state not only in animals, but also in man. This primarily includes the important circumstance that in the hypnotic state there is a more or less profound functional dissociation of the cerebral cortex into somnolent and wakeful sections and the possibility, under certain conditions, of shifts of these dissociated states along the mass of the cerebral hemispheres evoked by corresponding verbal suggestions.

ONSET OF SUGGESTED SLEEP AND EMERGENCE OF THE RAPPORT ZONE

First of all, we must consider the physiological significance of the imperatively uttered word "sleep" which under certain conditions leads to the development of suggested sleep.

As we have seen from the foregoing examples of the formation of a conditioned reflex in response to a verbal stimulus, the latter, as a rule, produces a reaction corresponding to the content of the word. The same is

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 330.

observed in the action of conditioned stimuli which are firmly linked with the state of sleep. Therefore, the words "fall asleep" and "sleep" very many times coinciding theretofore with the development of physiological sleep are conditioned stimuli responsible for the onset of sleep.

In this case, however, the somnolent state is expressed not in the form of *total,* i.e., natural, sleep, but in the form of partial, hypnotic sleep. It is characterized by the fact that between the sleeper and the person who has put him to sleep the speech contact, which has been named rapport, is retained. Thus, the activity of man's cerebral cortex in suggested sleep has certain peculiarities. Division of the cerebral cortex into sections of sleep and waking resulting, firstly, in the phenomenon of rapport and, secondly, in the phenomenon of heightened suggestibility is specific of this state.

Pavlov, as is well known, arrived at the conclusion (1927) that in the waking state the cerebral hemispheres represented a system *all parts of which were co-ordinated with each other.* In this case, according to Pavlov, the waking state is "supported by more or less rapidly changing stimuli reaching the cerebral hemispheres mainly from the external world and by the movement of excitation both because of the established bonds between the traces of the innumerable former stimulations and the bonds being established between the new and old stimulations."[1] Under conditions of the functional division specific of the different regions of the cerebral cortex which is in the state of suggested sleep, this co-ordination of all parts of the cerebral hemispheres with each other is already *absent.*

What are the peculiarities of the phenomenon of rapport emerging under these conditions?

The *rapport zone* produced in the sleeper by verbal suggestions is a more or less confined centre of concentrated excitation isolated from the remaining regions of the cortex by negative induction. For this reason, the coupling function of the cortical cells in the zone of the excitation centre sharply increases. The continuous functioning ("wakeful") zone of the rapport ensures the possibility not only for retaining constant contact between the sleeper and the person who has put him to sleep but also for effectuation of verbal suggestions. If sleep inhibition spreads to the rapport zone the communication with the sleeper is lost and the suggested sleep changes to total sleep.

It will be observed that the rapport with the sleeper may be *isolated* (reaction only to the words of the hypnotizer) or *generalized,* when anyone present may enter into speech contact with the sleeper. This is due to the fact that in the isolated rapport the sleeper has a complex and finely differentiated conditioned reaction to the hypnotist, i.e., not only to his words, but also to the pitch of his voice, the intonation in his speech, his manners, etc. By corresponding verbal suggestion of the hypnotizer this state of isolated rapport may be passed on to another person (phenomenon of "transfer of the rapport").

The conditions of the persisting rapport are somewhat analogous to the picture of the "sentry post" in usual partial sleep. As we know, however,

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 236.

the "sentry post" only awakens the sleeper at the necessary moment as shown, for example, by B. Birman's experimental studies (1925), while under the conditions of rapport emerging only in the state of *suggested* sleep and retained only while the sleeper is in this state, various physiological mechanisms of the first and second signal systems and of the subcortex may be brought into play. In this case the coupling function of the cerebral cortex of the sleeper is effected, which is evident from the new temporary bonds produced by the verbal suggestion of the hypnotist; various reactions are also evoked by the same suggestion. In addition, the sleeper under these conditions not infrequently very subtly and adequately reacts to the verbal influences of the hypnotizer, all this occurring *without disturbing the suggested sleep.*

It should be further emphasized that, unlike the "sentry post," the rapport zone is specific precisely as a second signal phenomenon: it is produced by the hypnotizing words. In addition, there is another important circumstance which distinguishes the rapport zone from the "sentry post." As a matter of fact, the rapport zone is not stable, but, on the contrary, mobile and dynamic. Moreover, being connected with one definite section of the sleeper's second signal system directly influenced by the hypnotizing words, the rapport zone may subsequently form bonds now with one and now with another section of the cerebral cortex belonging both to the second and to the first signal systems, which is directly dependent on the content of the verbal influences coming from the hypnotist. This drawing of new cortical sections into the sphere of activity of the rapport zone is apparently effected by a directed, irradiated stimulatory process owing to which these sections becoming disinhibited temporarily become active.

Lastly, it will be noted that the peculiarities of the dynamic structures emerging in the rapport zone are influenced by the personality of the physician who puts the subject to sleep. Since a conditioned reflex reaction is elaborated in this case, the rapport is isolated. The sleeper reacts to the words only of the physician with whom contact has been established.

All this testifies to the fact that the phenomenon of rapport and the underlying rapport zone qualitatively differ from the elementary "sentry post" which so frequently emerges in natural sleep.

Thus, the phenomenon of rapport is one of the most vivid manifestations of the functional division of the second signal system of the cerebral cortex into sections of sleep and waking.

A question naturally arises: In what phase of the transitional stage is man's cerebral cortex under conditions of suggested sleep, if it is possible to evoke by verbal suggestion most diverse, simple and complex physiological reactions, for example, in the somnambulistic stage of suggested sleep?

On the basis of his studies, F. Maiorov (1950) arrives at the conclusion that the "somnambulistic phase of hypnosis is characterized by a deep dissociation of cortical activity based on a mechanism of negative induction from one cortical functional system to the others." Such dissociation may take place, for example, between the afferent and efferent systems. Thus, the somnambulistic phase is not necessarily the "deep phase of hypnosis," as it was understood by clinicians.

On our part, we should like to emphasize the existence of certain optimal conditions under which verbal suggestions are most easily and firmly effectuated and consolidated evoking the most diverse physiological reactions. This can apparently take place precisely when the inhibited cortical bonds are most easily disinhibited by impulses coming from the rapport zone and intended selectively to put now some and now other bonds into an active state corresponding to the content of verbal suggestions.

However, different people may have their individual peculiarities depending on the type peculiarities of their nervous systems. Thus in some people such optimal relation of the strength of the inhibitory (hypnotizing words) and disinhibitory (words of suggestion) influences on the cortical dynamics coming from the person who put them to sleep will take place only under conditions of sufficiently deep functional dissociation of cortical activity typical of the "somnambulistic phase" of hypnosis (which corresponds to F. Maiorov's ideas), while in others it may emerge as early as the very initial signs of suggested sleep.

V. Bekhterev called attention to the fact that suggestions could be effectuated even in the waking state (for example, in the case of a lowered tone of the cerebral cortex).

What are then the physiological mechanisms determining the degree of suggestibility? How is the state of suggested sleep induced in man?

It has long been known that suggestibility differs in various people from a complete absence of it in some to a very rapid development of a deep somnambulistic stage in others. It may be assumed in keeping with Pavlov's conception of the physiology of higher nervous activity that *complete nonsuggestibility* typical of some people may be based on the prevalence of the second signal system over the first (reflective type of nervous system) inherent in their cortical dynamics with highly balanced and mobile basic cortical processes. *High suggestibility* may apparently be based on a prevalence of the first signal system over the second (inherent in the artistic type of nervous system) with easily emerging phenomena of mutual induction between the activities connected with the second signal system. In this case a strong imperative verbal influence of the hypnotist produces on the cerebral cortex of the subject a dualistic effect, antagonistic in itself. It leads, firstly, to a formation of a stable centre of concentrated excitation (rapport zone) in the auditory region and, secondly, to a simultaneous drop in the positive tone of the inhibited regions of the cerebral cortex, i.e., it aids in the development of an ever deepening sleep inhibition in all its remaining regions.

Thus arises a *deep and stable functional division of the cerebral cortex into waking and somnolent sections,* characteristic of the state of suggested sleep. This point of view fully corresponds to the fact pointed out by Pavlov that suggestibility is based on a weakness of the cortical cells which leads to their easy transition to an inhibited state and, hence, to the break-up of the normal and, consequently, unified work of the entire cortex.

The dependence of suggestibility on the degree of inhibition of the signal system (first or second) at which the hypnogenic stimuli are directed, discovered by I. Strelchuk's recent studies (1953), also reveals other aspects of the aforesaid mechanism of functional division of the cerebral cortex. According to this author's data, these phenomena arise more easily in some

people with the primary influence on the second signal system (by *verbal* induction of sleep), in others on the first signal system (inducing sleep by stimulation of the visual, auditory or tactile analyser), and in still others, by influence on both signal systems simultaneously.

Furthermore, according to the data of a number of authors (V. Bekhterev, A. Tokarsky, O. Vogt, O. Wetterstrand, A. Forel, and many others) also confirmed by our own observations, suggestibility may increase from session to session. The subjects who prove nonsuggestible may subsequently be gradually put into a hypnotic state by a series of special methods of inducing sleep. All this indicates that the readiness of the cerebral cortex for a stable functional division into wakeful and somnolent sections is subject to training and also that the process of inducing sleep is based on the mechanism of temporary bonds which become more and more consolidated as they are reinforced. It is, furthermore, known that a successful induction of sleep in one person in the presence of another who is not suggestible aids in putting the latter to sleep according to the mechanism of the imitative reflex.

Let us remind the reader in this connection, as it was experimentally proved on dogs by V. Kryazhev (1940) and M. Shtodin (1947), that a conditioned reflex is not infrequently formed in the animal independently only as the latter is present during the procedure in which a conditioned reflex in another animal is being formed.

What special features of higher nervous activity can be specific of people who easily fall into the somnambulistic phase of hypnosis and easily effectuate various suggested reactions in this state?

According to V. Bekhterev (1898), they differ from all other people by the fact that they are unable to resist suggestion. Owing to this the suggestion acts on the subject "with overwhelming force." It is, furthermore, known that some of these people sometimes lose their somnambulism and that their capacity for somnambulistic reactions, including the readiness to produce a sleeping reaction, for some reason or other sometimes suddenly disappears. At the same time other subjects retain this capacity from their early youth to advanced old age.

Lastly, it will be noted that the somnambulism of a given person clearly expressed in relation to one experimenter may at the same time be absent in relation to another, and this "somnambulistic readiness" in relation to some certain person may be transferred to another person by means of verbal suggestion. Sometimes it is of a generalized character. Thus, there is apparently no constant, absolute somnambulism, but only the ability of the nervous system of individual people to react in a somnambulistic way under certain conditions, these somnambulistic reactions conditioned by an increased readiness of their cerebral cortex for a deep functional division into sections of sleep and wakefulness.

We have long been interested (1930) in the question of the type of nervous system to which people, easily falling into the somnambulistic state, may belong. I. Volpert (1952) came closest to the solution of this problem. On the basis of his observations he came to the conclusion that the people easily lapsing into the somnambulistic phase of hypnosis "belong, as a rule, to a pronounced artistic type of higher nervous activity." The observations conducted by Y. Katkov in a mass study of suggestibility of students of

theatrical and musical schools really confirm that among this contingent there are relatively more people in whom the somnambulistic phase may be induced. Thus, a *functional weakness and an easy inhibitory capacity of the second signal system* with the possibility of its functional dissociation from the first signal system may, apparently, be specific of the subjects with the somnambulistic phase.

The problem of the nature of somnambulism is thus still far from being solved. Essential aid in the analysis of this phenomenon and in the elucidation of the problem of the number of people who can yield a somnambulistic reaction can, apparently, be rendered by the laboratory.

What are the practical methods by which man can be put into a state of suggested sleep?

There are two such methods and physiological mechanisms underlying them.

1. A sudden strong stimulation by word which leads to a *nearly instantaneous* onset of the state of suggested sleep. This phenomenon is based on the mechanism of a sharply developed transmarginal inhibition in the second signal system which puts vast sections of the cerebral cortex into a state of deep sleep inhibition while retaining a waking rapport zone. It resembles the picture of hypnosis of animals in which the cerebral hemispheres are embraced by inhibition also developing according to the mechanism of transmarginal protective inhibition leading the animal to total motor inhibition and, owing to this, to a temporary loss of reaction to tactile and pain stimuli.

2. The action of numerously repeated, quiet, monotonous, hypnotic verbal stimulations which lead to a *gradual* development of a hypnotic state of larger or smaller portions of the cerebral cortex. In these cases, the phenomena of suggested sleep are based on the mechanism of internal or conditioned inhibition.

As I. Pavlov observes (1927), the method invariably used for inducing precisely this state of suggested sleep in man consists in repeatedly uttering, in a monotonous tone, words which describe the physiological changes firmly connected in all of us with sleep inhibition and therefore evoking it. Everything that coincided several times with the state of sleep in the past is likely to hypnotize. It will be noted that most hypnotizing methods attain their aim the sooner and the more surely, the more frequently they are used. Thus, the more often hypnotization is repeated, the higher the suggestibility of the subject, which is actually observed in most cases.

With a repeated development of suggested sleep, the latter may arise in a conditioned reflex way under the influence of the stimuli of the first signal system which theretofore coincided with the verbal induction of sleep. Thus, some of our subjects, repeatedly put into the state of suggested sleep by verbal suggestion accompanied by metronome beats, lapsed into this state while awaiting their turn in the reception room as soon as they heard the metronome beats coming from the laboratory. Thus, the sound of the rhythmic metronome beats, which had theretofore been indifferent to these people, became a conditioned stimulus of the first signal system inducing the state of suggested sleep until then provoked by the verbal instruction: "Go to sleep!" or "Sleep!", i.e., by the stimuli of the second signal system. Other subjects experience somnolence as soon as

they enter the premises in which they were until then repeatedly put into the state of suggested sleep. In this case, the circumstances themselves suggested sleep in them in a conditioned reflex way.

The following is an example from our former observations (1930).

Subject S., who regularly came to the laboratory for sessions of suggestion began to feel drowsy after a number of such visits as soon as she was placed on a couch long before being put to sleep (we could detect this by the respiratory curve the moment the recording apparatus was turned on). Since we did not want this to occur, we had to interrupt it by corresponding verbal suggestion: "You do not want to sleep," after which respiration grew deeper and other signs of wakefulness simultaneously appeared (Fig. 7).

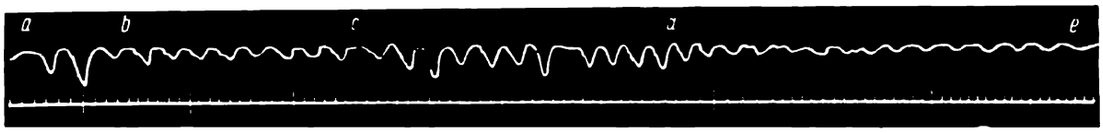

Fig. 7. Respiration in the waking state (*a-b*), in self-induced drowsy state (*b-c*), after awakening to the words: "You do not want to sleep" (*c-d*), and after verbal sleep induction (*d-e*).

But when we let subject S. thus fall asleep once, before the beginning of the examination, it turned out that in this conditioned reflex sleep, which developed independently under the influence of the surrounding atmosphere, she retained all the specific peculiarities of suggested sleep: reaction to verbal influence, effectuation of suggested states, etc.

Our associate A. Tsinkin (1930) observed the same phenomenon. I. Narbutovich (1933) combined the words with which he suggested sleep with the action of the metronome at 58 beats per minute, and the words which awakened the subject with the action of the metronome at a rate of 200 beats a minute. He thus developed corresponding conditioned reflex reactions in his subjects. At the rate of 58 beats per minute the metronome induced a state of sleep in the subjects, while at the rate of 200 beats per minute these people awakened. All this confirms I. Pavlov's words to the effect that "a hypnotic state as an inhibitory state easily forms temporary conditioned bonds with numerous external agents on the basis of simultaneity."[1]

It will be noted that we frequently observe an unfavourable influence on the onset of suggested sleep by unusual conditions of the external environment: people who quickly lapse into a state of suggested sleep under usual conditions fall asleep more slowly and less deeply under new circumstances unusual for their first signal system; sometimes it is at first impossible to put them to sleep. Contrariwise, when these people are frequently put to sleep under conditions they are accustomed to, suggested sleep develops more rapidly. All this indicates that suggested sleep develops according to the mechanism of temporary bonds.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 454.

Thus, the onset of suggested sleep, as a special physiological state of the cerebral cortex, which is similar to but not identical with the state of natural sleep, requires:

1) A positive attitude of the subject to the possibility of being put to sleep;

2) A ready inhibitory capacity of the cerebral cortex and its readiness for a functional division into sleeping and waking sections;

3) Absence of any counteracting reasons;

4) Corresponding hypnogenic words of suggestion coming from the hypnotist.

DEPTH OF SUGGESTED SLEEP

We were interested in the problem of the possibility of changing the intensity (depth) of suggested sleep by verbal suggestion. For this purpose we made use of corresponding words: "Sleep fast," "Do not sleep fast,"

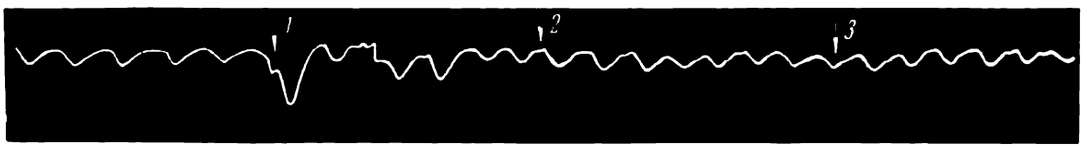

Fig. 8. Respiration during suggested sleep. Experimenter's cough (*1*) evoked a change in respiration. After the instruction: "Sleep faster" (*2*), no change in respiration in response to the same stimulus was observed (*3*).

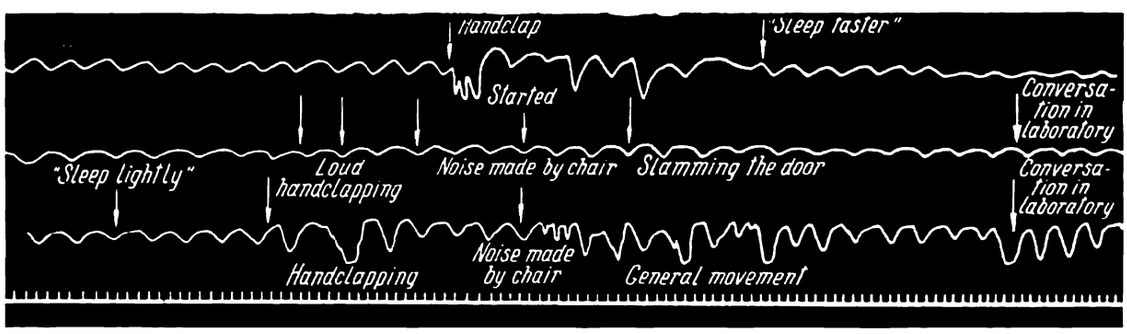

Fig. 9. Respiration during suggested sleep. A sudden loud handclap over the sleeper's ear provoked a change in respiration and general movement. After the command: "Sleep faster," the same stimulus, like a number of others, evoked no reaction. After the verbal suggestion: "Sleep lightly," the same stimuli produced reactions again.

"Drowse lightly," etc. In order to determine the depth of sleep we ordinarily used various stimuli causing the subject to react in a way that could in some manner be objectively recorded. The same stimuli provoked variously pronounced reactions depending on the content of the suggestion aimed at changing the depth of sleep. The pneumograms shown in figures 8 and 9 testify to the fact that it is possible to deepen or weaken the inhibitory state of the cerebral cortex by verbal suggestion.

The extent to which the state of suggested sleep can be deepened by verbal suggestion is shown in our studies (1928) in which we used a strong blow with a metal hammer on a large sheet of roofing iron (area 1.3×1.5 m.) as a stimulus.

In response to this stimulation, the subject always showed a very violent respiratory reaction in the waking state (Fig. 10); this reaction was also accompanied by a rise in her blood pressure (by 15 to 20 mm.). The right part of the curve shows that the subject could not voluntarily withhold

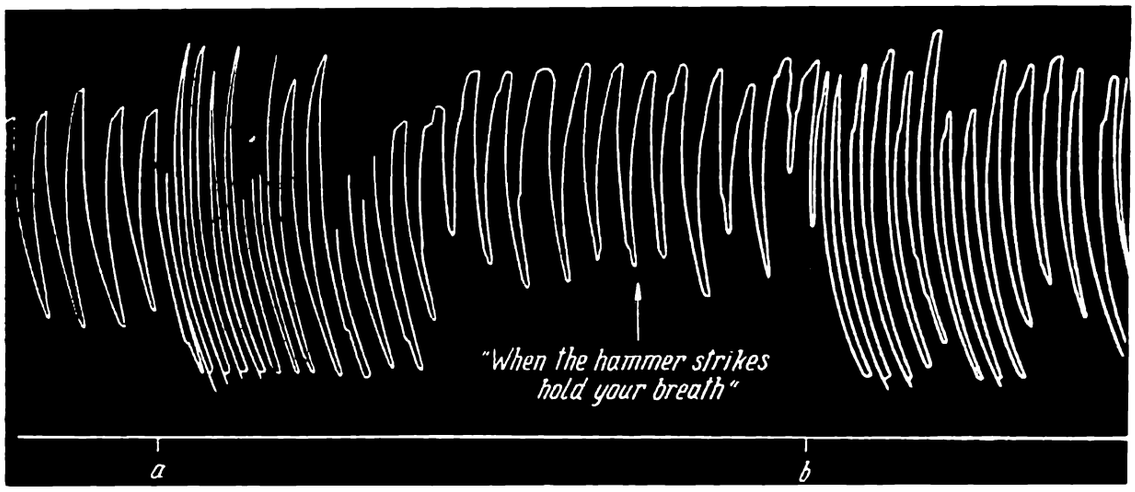

Fig. 10. Respiratory reactions of a subject in the waking state to super-power acoustic stimuli (striking a hammer against sheet of iron).

a—iron struck suddenly; *b*—after instruction: "When the hammer strikes hold your breath."

it even when there was a corresponding order: "When the hammer strikes hold your breath."

We chose a stimulus in the form of striking an iron sheet with a hammer for checking on the depth of suggested sleep and subsequently

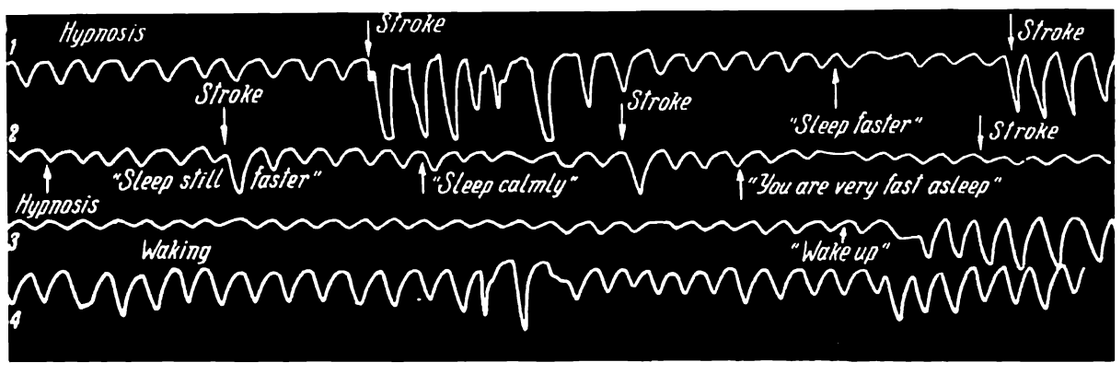

Fig. 11. Varying the depth of suggested sleep by verbal suggestion. The subject's respiratory reaction to the sudden acoustic stimuli (striking a hammer against sheet of iron) served as the index of the depth of sleep.

1 and *2*—weakening of the respiratory reaction with the deepening of the suggested sleep; *3*—respiration during quiet suggested sleep and awakening from it; *4*—respiration in the waking state.

deepened the suggested sleep by the words: "Sleep faster," "You are very fast asleep." In this case, we consciously made no other suggestions which in some way or other might aid in inhibiting the auditory analyser ("You do not hear," etc.).

We put the subject to sleep by means of the usual order: "Go to sleep" and "Sleep" and, making sure, by the respiratory curve, of the real

onset of suggested sleep, we struck the iron sheet hard with the hammer. This did not awaken the subject, but the respiratory reaction was quite strong (Fig. 11). It was weaker, however, than in the waking state. After further deepening the sleep, these tests produced a weaker reaction and, finally, the stimulus ceased to provoke any respiratory changes.

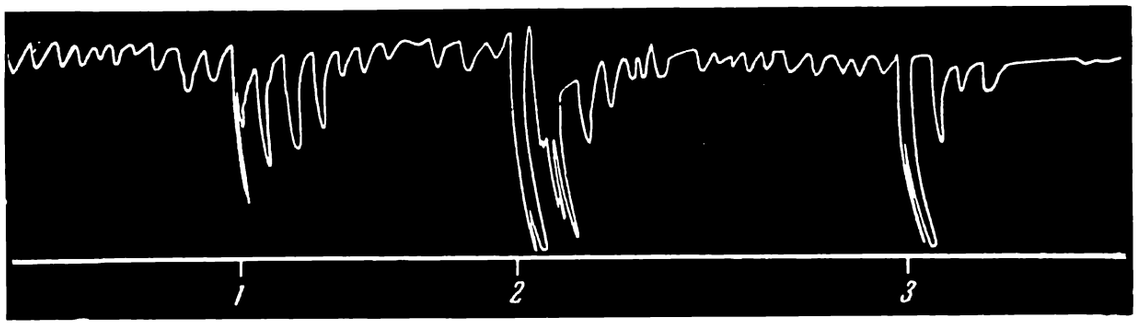

Fig. 12. Respiration during suggested sleep with a number of equally strong sudden acoustic stimulations.

1, 2 and *3*—striking a hammer against sheet of iron.

In order to exclude any doubt as to the chance of the subject's getting used to the aforesaid stimuli (striking a sheet of iron), we conducted a control test which consisted in striking the same sheet of iron with a hammer several times during the suggested sleep without any verbal suggestions. The curve shows that the reaction was of the same strength, each time the iron was struck, all through the stimulations (Fig. 12).

The question that arose in connection with this was whether we could induce deep and quiet suggested sleep in the subject if we made the verbal suggestion about it not for the present but for the future.

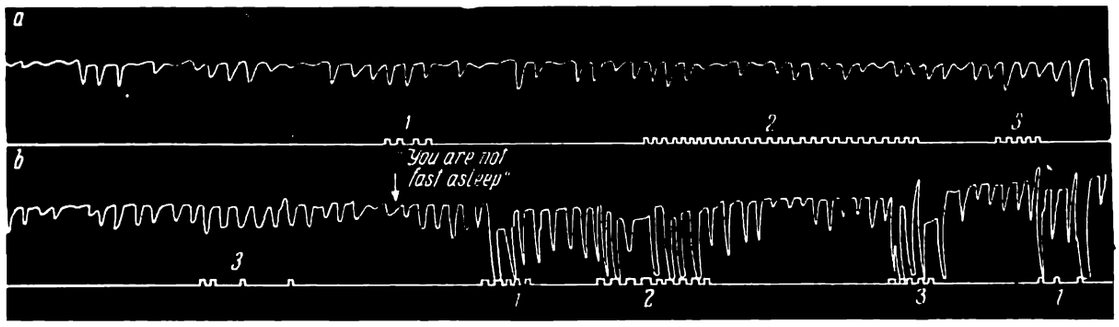

Fig. 13. Respiration during suggested sleep.

a—during deep sleep resulting from a post-hypnotic suggestion made earlier (no reactions to stimulations); *b*—after instruction: "You are not fast asleep." A respiratory reaction arises in response to various stimulations.

1—experimenter's cough; *2*—rumbling of sheet of iron; *3*—striking a hammer against sheet of iron.

In order to answer this question, we made the following suggestion to subject S. during her suggested sleep: "Day after tomorrow, December 8, you will come to the laboratory, lie down on the couch and will immediately fall asleep; you will sleep fast and nothing but our order will awaken you." This suggestion was fully effectuated: as soon as the subject came to the laboratory a day later, she lay down on the couch and immediately fell asleep, the objective signs of which were the corresponding respiratory

changes and the drop in arterial pressure. Moreover, during the 45-minute sleep, such stimuli as the rumbling of a large sheet of iron and the blows of a hammer against it failed to provoke the reactions which arose without the corresponding suggestion.

The suggestion of *light* sleep immediately led to the restoration of all the aforesaid reactions to the action of the stimuli (Fig. 13). A repeated study showed the same picture.

Summarizing the data of these studies, we must say that by provoking a state of suggested sleep by verbal influence, we can subsequently weaken the inhibited state of the cerebral cortex or, on the contrary, strengthen it by corresponding verbal suggestions; the reactions of some divisions of the vegetative nervous system or others may serve as an objective criterion.

Even more instructive are the studies of the depth of suggested sleep conducted by Y. Povorinsky and N. Traugott (1936) by the conditioned reflex method; by means of verbal suggestion the authors were able to effect a rather fine regulation of the depth of suggested sleep and to provoke manifestations of various phases of sleep inhibition, i.e., the righting, paradoxical and ultraparadoxical phases. Whereas respiratory reactions formed the criterion of the deepening of suggested sleep in our studies, motor reactions were the criterion used by the aforesaid authors.

Similar results were obtained by I. Korotkin, F. Maiorov and M. Suslova (1951) in investigating the somnambulistic phase; using verbal suggestion the authors changed the intensity of the sleep inhibition (in any direction). In this case the criterion was the state of the conditioned (winking) reflexes: when deep sleep inhibition was suggested the conditioned winking reflexes disappeared, while during suggested light sleep they reappeared in most of the subjects. The same regularity was observed as regards unconditioned winking reflexes.

Analogous data were recently obtained by A. Marenina (1952) who made an electroencephalographic study. The changes in the depth of the suggested sleep produced by verbal suggestions showed corresponding changes in the nature of the electroencephalogram.

All these data indubitably indicate the possibility of controlling the depth of suggested sleep by corresponding suggestions.

OBJECTIVE SIGNS OF SUGGESTED SLEEP

We have convinced ourselves that under certain conditions verbal suggestion used in the form of an imperative verbal instruction: "Fall asleep" or "Sleep," really puts man's cerebral cortex into a state of sleep inhibition (suggested sleep) leaving a wakeful point which ensures the maintenance of rapport with the hypnotist. This offers a possibility of exerting especially effective influence on the cortical dynamics in the form of some verbal suggestion.

To prove that changes corresponding to the content of the hypnotic words occur in the organism of man at this time, we recorded objectively the reactions of the vegetative nervous system. We attached particular importance to the level of arterial pressure since none of the classical studies in hypnosis contained in any way accurate indications as to its state during suggested sleep.

The results of the studies made by a number of authors and published in the past are very scant and contradictory. Thus, according to Lenk's data (1920), arterial pressure rises in hypnotic sleep which makes him conclude that the hypnotized person is in a state of affect. According to Deutsch and Kauff (1923) the arterial pressure also rises in suggested sleep.

Our observations show that in suggested sleep arterial pressure is not higher but *lower*. Thus A. Tsinkin (1930) conducted a systematic investigation of the arterial pressure in a large number of people (71 observations on 26 subjects) during suggested sleep. The author's data show that

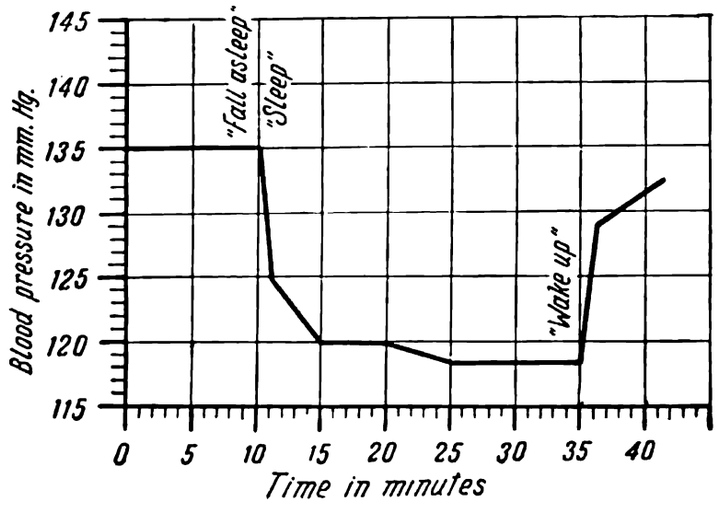

Fig. 14. Changes in blood pressure during induction of suggested sleep and awakening from it.

during suggested sleep the arterial pressure was lower than in the waking state, the extent of its drop varying in different subjects between 8 and 25 mm.

It was also observed that the rate at which the arterial pressure dropped during the transition from the waking state to the state of suggested sleep and the pressure rose during the awakening was directly dependent on the speed of the subject's transition from one state to the other. This phenomenon proved quite regular: studies of the arterial pressure always revealed the same picture in every subject (Fig. 14).

It will be observed that A. Tsinkin (1930) in association with K. Platonov measured the arterial pressure also during natural sleep during which it was found to be lower.

We were, furthermore, interested in the reactions of the *vascular system* during the transition from the waking state to the state of suggested sleep.

The plethysmograms (recorded by means of the Uskov sphygmograph) show a drop in vascular tone as the subject is falling asleep and a rise during awakening (Fig. 15).

It will be noted that the influence of the very form and tone in which the suggestion is made by the physician shows itself very clearly at this time. Thus, the energetically and abruptly spoken words: "Sleep" or "Wake up," produce a rapid change in the curve, while slowly and quietly uttered

words "Wake up" evoke a correspondingly slow reaction on the part of the vessels (Fig. 16). After the order: "Sleep" the curve regularly drops, while after the signal: "Wake up," it rises.

The plethysmographic curves obtained by A. Tsinkin also show a drop in vascular tone during suggested sleep. Moreover, Y. Povorinsky's data (1949) indicate that during suggested and natural sleep the plethysmograms hardly differ from each other; during deep natural and deep suggested sleep the author obtained "a zero curve with a clear pattern of respiration and pulsation and a sufficiently large amplitude."

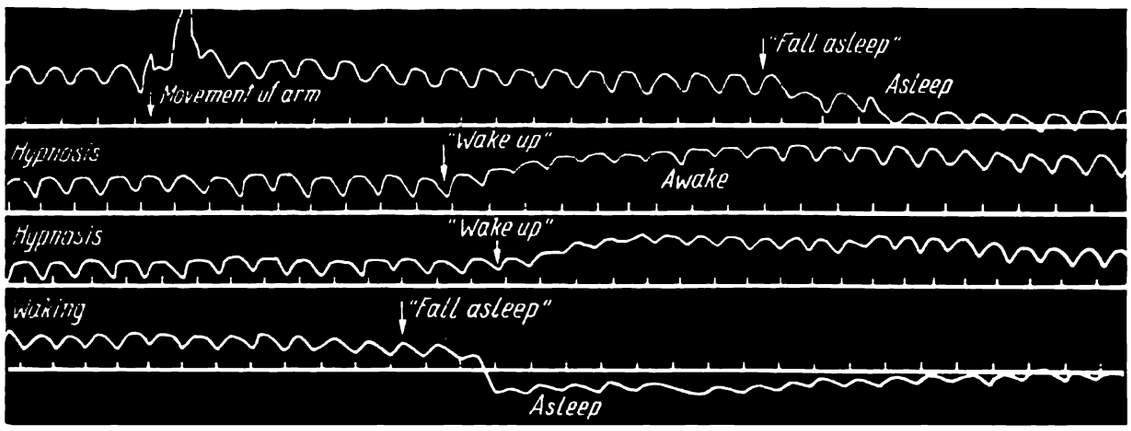

Fig. 15. Dilation of vessels during transition to suggested sleep and their constriction during transition to the waking state. Plethysmograms recorded by Uskov sphygmograph.

Nor has there been any agreement concerning *respiration and the pulse* during suggested sleep, the results obtained by various authors differing very much in this respect.

According to Deutsch and Kauff (1923) the pulse and respiration accelerated during the onset of sleep and during suggested sleep; according to Kirschenberg (1925) they slowed down, while according to other authors (Bernheim, Löwenfeld and Kronfeld) no changes in the character of the pulse and respiration occurred. According to A. Lazursky and E. Gize, both the acceleration and slowing down of the pulse and respiration (observations of 11 people) is dependent on the depth of the suggested sleep. Lastly, according to Braid (1843), Lenk (1920) and A. Gerver (1925), the pulse and respiration accelerated during suggested sleep. These discrepancies in the inferences may be due to the faulty methods of research used by these people.

Our observations (1930) in which a "quiet" method of inducing sleep and the instruction "sleep" and "fall asleep" were used showed a slowing down of the pulse (by 8 to 10 beats per minute) and of respiration in the majority of cases.

Thus, by studying the pulse and respiration in 24 subjects during suggested sleep (67 studies) A. Tsinkin came to the conclusion (1930) that in the state of deep suggested sleep the pulse slowed down by 6 to 12 beats per minute, while during weak or medium suggested sleep it slowed down by 3 to 7 beats per minute. The respiratory rate of all the people observed also slowed down by 3 to 6 per minute (Fig. 17), varying with the depth of

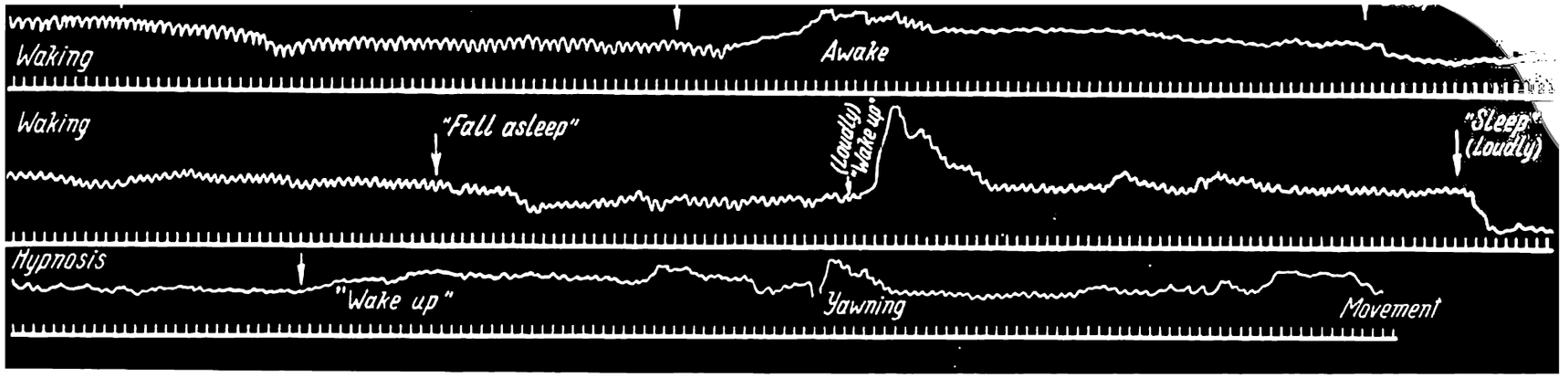

Fig. 16. Different rates of sleep onset and awakening depending on the tone and form of verbal suggestion. Plethysmogram recorded by Uskov sphygmograph.

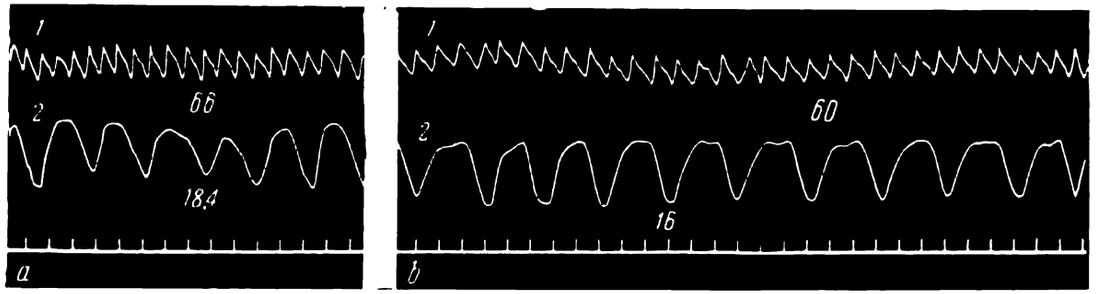

Fig. 17. Pulse (*1*) and respiration (*2*) in the waking state (*a*) and during suggested sleep (*b*). Figures show pulse and respiratory rate.

suggested sleep. The respiratory excursions slowed down because of the longer pause between the inspiration and expiration. Under these conditions respiration became more regular and at the same time more or less *shallow.* Measurements of the curves showed that the *breathing was on the average about half as deep.* Two of the people observed formed an exception; at the moment of falling asleep they showed an increase in respiration (also in the pulse rate) which later slowed down, however, and only in some cases did the rate correspond to that of the waking state with a lowered arterial pressure. In the waking state the respiratory curve of these subjects was not always even, either in rhythm or depth. During suggested sleep these variations disappeared.

Let us now consider the data on the cardiac activity of the persons observed, we obtained by electrocardiography in 1928.

Subject S., 42 years old, had a pulse of 62 and an arterial pressure of 135, while lying down in the waking state. The command "Go to sleep!" was given. From this moment the pulse rate increased somewhat and, whereas before this each cardiac wave was 0.97 sec. long, it now diminished to 0.90 seconds. After the complete lapse into the state of suggested sleep, however, the cardiac wave returned to its former value—0.97 seconds with the pulse rate subsequently slowing down: 30 minutes after falling asleep it was 60 beats per minute, in the 40th minute it was 57 with an arterial pressure of 125. The subject awakened with complete amnesia.

These data indicate that, whereas during the transition from the waking state to a state of suggested sleep the pulse rate grows faster, during the process of sleep induction it slows down. The acceleration must, apparently, be regarded as a direct reaction to the suggestion itself, while the slowing down of the pulse corresponds to the state of suggested sleep as such, which arises the moment sleep inhibition begins to develop and is subsequently still more sharply pronounced.

In one of the patients with Basedow's disease in our clinic the pulse slowed down from 117 to 105 during the first hypnotic sessions and even to 100 in the subsequent sessions (A. Tsinkin and Y. Grunfest). Studying the pulse and respiration in 1930, I. Rusetsky also found that the transition to the state of suggested sleep led to a slowing down of the respiratory rhythm which was rapidly equalized after the sleep, while the pulse displayed a more stable and more noticeable tendency to deceleration.

These may include the studies of the eye-heart reflex made by G. Lieberman on 13 people, which have shown that during suggested sleep this reflex is intensified nearly twofold, whereas the orthostatic cardiac reflex is less pronounced. Moreover, in a recumbent position, the pulse is slowed down more during suggested sleep than in the waking state.

In considering the respiratory reactions it should be noted that in a number of people we have observed their transition to a state of suggested sleep was accompanied not only by a slowing down of respiration, but also by a change in the depth of the respiratory excursions which in most of them grew shallower.

Thus, for example, subject K., 28 years old and former alcohol addict, under our observation fell asleep fast in response to the verbal signal "Sleep!" alone. Fig. 18 very clearly shows the fast and sharp slowing down of respiration and flattening of the respiratory waves arising at this time,

and their rapid rise when the opposite command "Wake up!" is given. On the 20th minute of suggested sleep respiration of subject K. was found to have slowed down.

Patient F., 27 years old, showed during the eighth examination, conducted in a sitting posture, a clear picture of equalization of respiratory

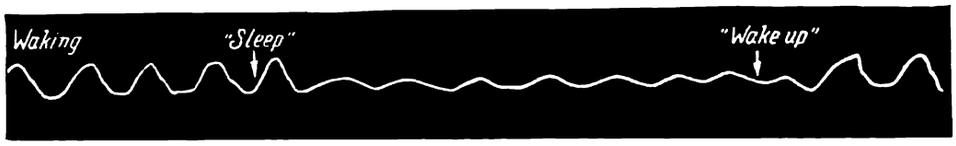

Fig. 18. Changes in respiration during transition to suggested sleep and to the waking state.

waves usual in suggested sleep and at the same time a weakened respiration (compared with the respiration in the waking state). The upper curve (Fig. 19) shows a picture of respiration before the patient fell asleep and at the beginning of sleep, the lower—at the end of uninterrupted long-

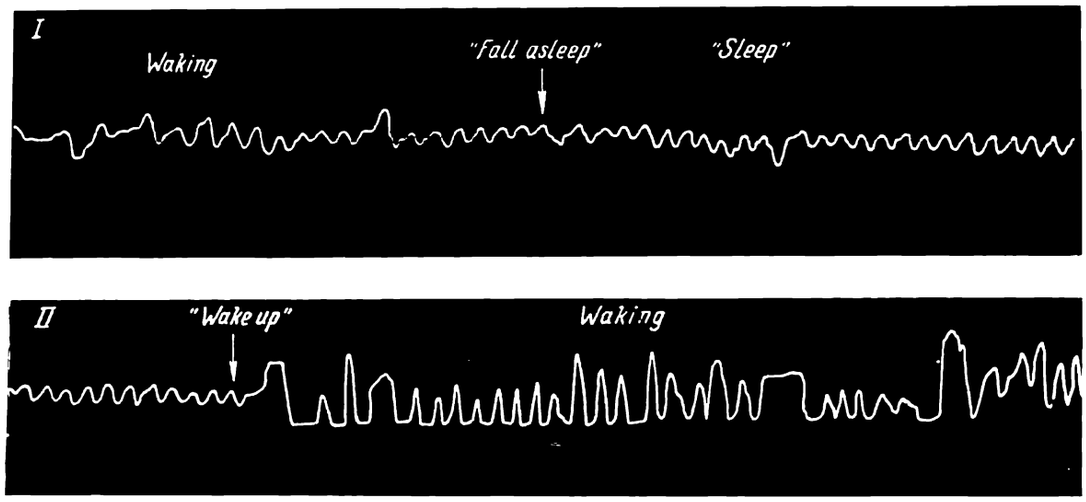

Fig. 19. Changes in respiration during transition to suggested sleep and to the waking state.

I—beginning of session; *II*—end of session.

continued sleep and upon awakening. The patient was awakened in the 28th minute. Here, as in the first case during the transition from one state to another, a rapid change in respiratory reactions is particularly manifest.

This equalization of respiration, its evenness and rhythm are especially clearly shown in the pneumograms recorded during sleep lasting nearly 1 ½ hours with the subject in a recumbent position (Fig. 20).

Throughout this time respiration remained shallow, on the level of expiration, and sufficiently rhythmic. The curve shows disturbances in the depth of respiration and in its rhythm conditioned by extrinsic factors—change in the position of the body, general movements, head movements, sound stimulations (accidental fall of a chair). The end of the pneumogram shows a respiratory picture in the waking state with changes in the respir-

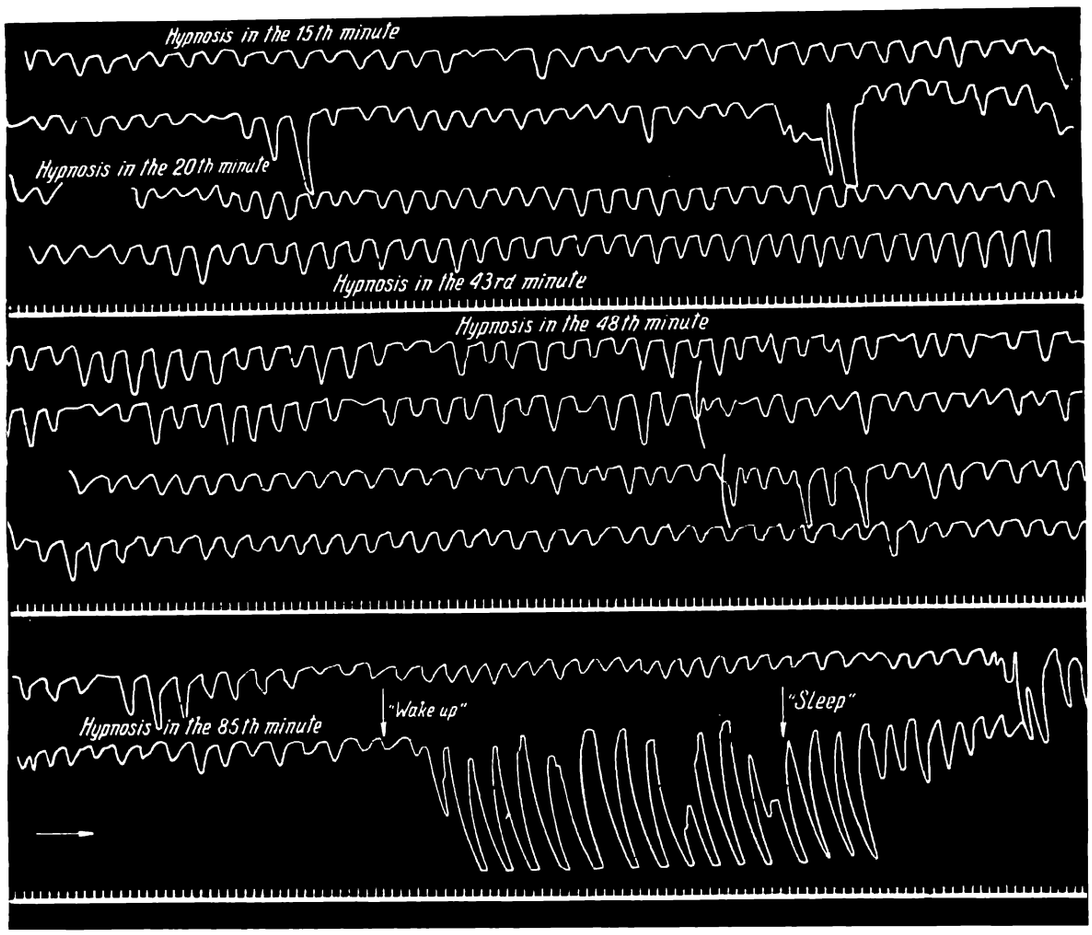
Hypnosis in the 15th minute
Hypnosis in the 20th minute
Hypnosis in the 43rd minute
Hypnosis in the 48th minute
Hypnosis in the 85th minute
"Wake up"
"Sleep"

Fig. 20. Respiration during suggested sleep lasting 1½ hr.

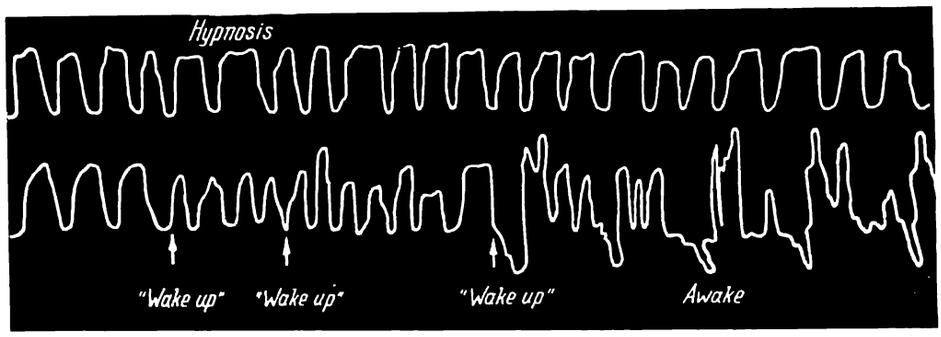

Fig. 21. Respiration of an affective epilepsy patient during suggested sleep.

atory rhythm which occurred during the transitions from one state to another; a deceleration of respiration was observed along with changes in its depth.

We can cite the observations of patient N. as an example of equalization and deceleration of respiration during suggested sleep. The patient breathed extremely unevenly in the waking state. During suggested sleep his respiration slowed down (by 9 respiratory cycles per minute) and considerably evened out (Fig. 21).

It will be noted that the respiratory rhythm changes as fast as the patient falls asleep, which is particularly noticeable in subject S. Other people, who did not fall asleep at once, showed gradual changes in the respiratory curve if the depth of the suggested sleep also developed gradually.

Thus, on the basis of a rather large number of observations, conducted by us in association with A. Tsinkin, we can assume that in suggested sleep the pulse rate and respiration, as a rule, slow down; moreover, in most cases, respiration not only grows weaker but also more rhythmic, i.e., it evens out, while the blood pressure under these conditions, as a rule, drops.

Y. Shraiber's recent experiments (1948) have also shown that during protracted states of suggested sleep the vegetative indices (pulse, blood pressure, respiration, perspiration and the sugar level in the blood) drop, which occurs without any special suggestions in this respect.

Thus, the reactions of the pulse, respiration, blood pressure and vascular tone may really serve as objective signs of sleep, particularly suggested sleep. Changes in arterial pressure are especially valuable in this relation.

The data obtained by R. Shlifer (1930) on 6 people in our clinic by recording the reaction of arterial pressure to an adrenalin injection during suggested sleep are of some interest. According to these data when 1 ml. of a 0.1 per cent adrenalin solution was injected subcutaneously, four of the people observed showed a vagotonic reaction, while two of them showed no reaction in blood pressure at all, as opposed to the sympathicotonic reaction which occurred in all of them in the waking state.

I. Sumbayev, and Heilieg and Hoff (abroad) obtained similar results: investigating the state of the vegetative nervous system in persons during deep natural sleep, they discovered that a subcutaneous injection of adrenalin which caused a considerable rise in arterial pressure in the waking state resulted either in its insignificant rise or failed to make any changes in it during natural sleep. In 4 people in a state of deep suggested sleep the injection of adrenalin also failed to provoke any rise in arterial pressure.

The studies conducted by I. Vish (1953) are as significant; they testify to the fact that a subcutaneous injection of a therapeutic dose of phenamine made during suggested sleep provokes in the given person a drop in arterial pressure and a slowing down of cardiac activity.

According to F. Maiorov's data (1948) the changes in motor chronaxie during light natural sleep are similar to those occurring in suggested sleep.

We must add to these observations the data of Roentgen studies conducted by us in association with roentgenologists T. Osetinsky (1927), N. Beschinskaya (1931) and V. Kopitsa (1950) in relation to the muscle tone of the stomach during suggested sleep.

After falling asleep 16 healthy people, as a rule, showed a sharp drop in the tone of the stomach muscles: the stomach dropped lower than in the waking state and changed its form (Fig. 22). The evacuation of the barium meal also slowed down.

A picture of a hypotonic state of the stomach was observed essentially in all of our subjects with this hypotonia always rather sharply pronounced.

A lowered tone was also observed in other organs. Thus, changes in the excursion of the diaphragm domes were particularly manifest. The amplitude of their waves decreased, which was apparently conditioned not only by the influence of the cortical sleep inhibition on the tone of the diaphragm itself, but also by a decrease in the respiratory function of the thorax as a whole.

According to our data (in association with M. Linetsky and A. Troshin), corresponding changes are also observed in the secretion of gastric juice during suggested sleep; this secretion sharply diminishes and in deeper suggested sleep stops altogether (studies made on an empty stomach).

Studying the gastric secretion in a patient with a gastric fistula (1948) O. Gordon found that a considerable diminution of the secretion occurred during suggested sleep. F. Komarov established (1953) that during usual sleep the gastric and hepato-pancreatico-duodenal secretions diminished. Thus, the phenomena in suggested sleep are similar to those in natural sleep also in this respect.

Johnston and Washeim (1928) obtained similar results. Their studies show that the state of suggested sleep leads to a temporary inhibition of gastric secretion with the curves of general acidity and free hydrochloric acid nearly identical during natural and suggested sleep.

Glaser's studies (1924) of the calcium ion content in the blood showed that the concentration of calcium ions in the blood dropped both during natural and suggested sleep in proportion to the depth of sleep.

We deem it necessary also to mention the studies made by dermatologist A. Kartamyshev (1942) of the so-called Müller phenomenon consisting in the fact that a drop in the leucocyte count in the peripheral blood is observed after a subcutaneous injection of an insignificant amount of milk (or a solution of grape sugar, air, water, etc.) to a person in a waking state. F. Müller believed this phenomenon to be conditioned by pain stimuli of the skin, which reflexly provoked the stimulation of the vagus that led to a dilatation of the vessels in the region of the splanchnic nerve and to an increase in this region of the leucocyte count due to which the latter decreased in the peripheral vessels.

Studying the mechanism of this phenomenon in 22 patients with skin diseases under conditions of suggested sleep and making 31 examinations A. Kartamyshev found the Müller phenomenon to be absent. He concluded that in the Müller phenomenon it was not the pain stimulus, which he eliminated by corresponding suggestion, that was of any importance, but the very state of deep suggested sleep during which the injection was administered. The Müller phenomenon recurred in the same patients after the end of suggested sleep. Hence, the author draws a correct conclusion that this phenomenon may be conditioned by changes in the state of the vegetative nervous system connected with the very state of suggested sleep.

In 1927, in association with A. Reprev, we tested the skin-galvanic reflex of our subjects in both the waking state and the state of suggested sleep; this test showed that objective proof in favour of the changes occurring in the organism could be obtained also in this. As a matter of fact, the studies recently conducted by Y. Povorinsky established that under the action of hypnotics, in falling asleep naturally or in sinking into suggested sleep, the variations in the skin-galvanic reflex become negligible and more or

less uniform in nature. Awakening evokes a rapid change in the character of this reflex accompanied by variations in its value in all cases.

A. Marenina (1952) conducted galvanometric studies in perspiration (by V. Poderni's method modified by her) both during natural and suggested sleep. She found that in both cases perspiration diminished during the onset of sleep and reached the lowest level in deep sleep. In suggested sleep, perspiration diminished the more, the deeper the state of suggested sleep. According to her data, the character of the electric activity of the cerebral cortex coincides both in suggested and in natural sleep.

It was considered important that we get a clear picture of the vegetative

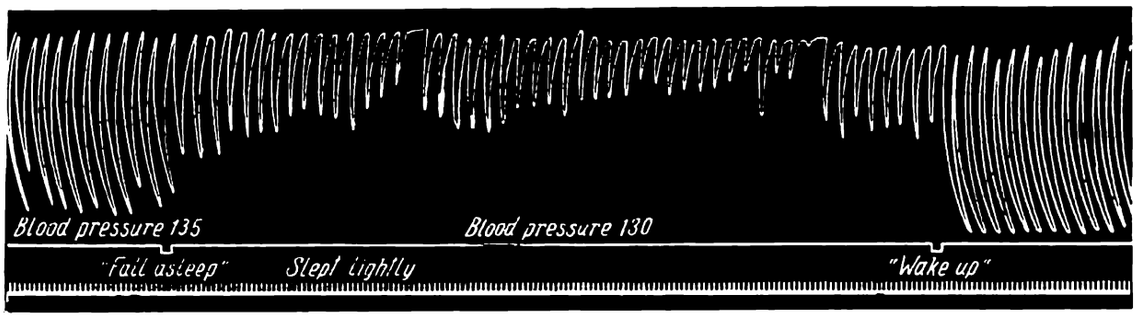

Fig. 23. Respiration during light suggested sleep.

reactions during various depths of suggested sleep. We have already observed that the depth of suggested sleep does not fail to influence the respiratory depth. Thus, in Figs. 9 and 11 we showed curves obtained during the deepening of suggested sleep produced by corresponding verbal suggestion with a flattening of the respiratory curve occurring parallel with the other objective signs of deepening sleep.

A similar picture was observed when the sleep of subject S. was shallow. The depth of her respiration diminished on the average only twofold (Fig. 23). This time subject S., who always fell asleep rapidly and rapidly lapsed into a state of deep sleep, was not fast asleep. According to her statement, she was only "deeply drowsing" and sometimes even vaguely perceived all that was going on in the laboratory. In this case her arterial pressure also dropped by 5, rather than by 10 points, as it was observed during deep suggested sleep.

The extent of the drop in arterial pressure could, apparently, really serve as an objective criterion of deep sleep. Thus, the parallelism of these phenomena was very clearly revealed in a number of cases: the lower the arterial pressure dropped in the process of sleep development, the shallower was the respiration (regardless of the method of sleep induction). The gradual decrease in the amplitude of the respiratory curve during the period of falling asleep also seems to indicate a constant relationship between the depth of sleep and the depth of respiration. Thus, the respiratory curve can also serve as an index of the rate of falling asleep. A. Tsinkin's more detailed studies (1930) confirm that the arterial pressure and the depth of respiration are in inverse proportion to the depth of suggested sleep, and the slower the falling asleep, the slower the drop in arterial pressure.

On the basis of this data we may confidently maintain that with a deepening of the suggested sleep the respiration and pulse slow down with respiration becoming more shallow in the majority of the people observed. However, there may be individual deviations from this general rule, observed also during natural sleep, when even the peculiar Cheyne-Stokes type of respiration is encountered.

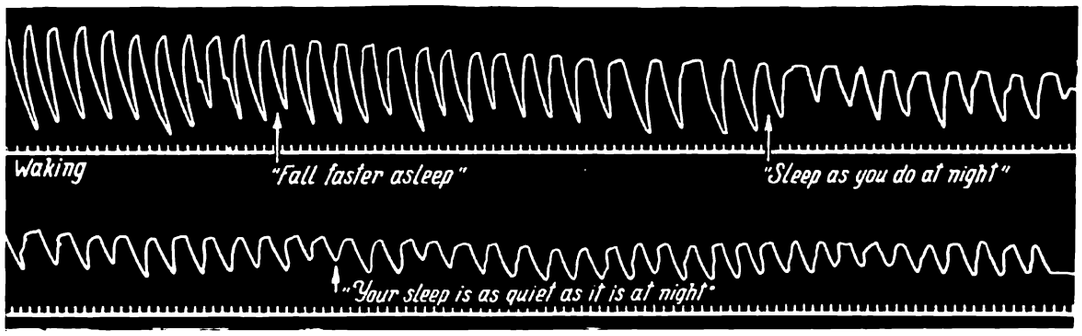

Fig. 24. Respiration of a subject slowly lapsing into sleep. The most perceptible change in respiration occurred after the suggestion: "Sleep as you do at night."

The foregoing is especially clearly illustrated by the curves of subject M., 45 years old (Fig. 24). They show that before falling asleep this subject breathed rather deeply. Uncommonly interesting in this case is the picture showing the changes in the height of the respiratory waves relating to the moment of the verbal suggestion: "Sleep as you do at night," which was apparently a conditioned reflex reproduction of the picture of transition to the respiratory regime arising during natural nocturnal sleep.

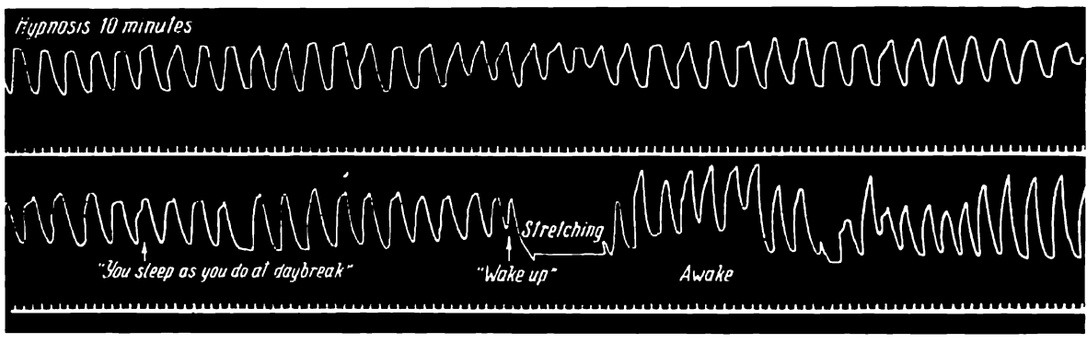

Fig. 25. Change in respiration during transition to lighter sleep after suggestion: "You sleep as you do at daybreak."

Taking note of this phenomenon and being aware that the subject as a hunter was in the habit of waking at daybreak, we made the corresponding suggestion: "You sleep as you do at daybreak." If you examine the pneumogram (Fig. 25) you will see certain changes in the depth of respiration: it has become less shallow.

The following observation made by us jointly with A. Matskevich indicates the possibility of precisely such a conditioned reflex bond: endeavouring to bring the conditions of suggested sleep closer to the state of natural nocturnal sleep, we made the following suggestion to subject

S. in hypnotic sleep: "It is now 3 o'clock in the morning and you sleep as fast as you do usually at this time." We noticed immediately that the arterial pressure dropped 10 mm. more than it did during usual suggested sleep. Thus a conditioned sleep reflex to a certain time of night appeared in this case as it did in the previous cases.

It follows that the picture of changes occurring in a number of vegetative indices during the transition to a state of suggested sleep, with the deepening of this sleep undergoes further similar changes parallel with the changes in the depth of the suggested sleep.

It seems to us that the aforesaid data are quite sufficient to confirm that the transition to a state of suggested sleep involves a picture of a total vegetative shift towards vagotonia, the more so since under these conditions we also observe other symptoms of this shift—narrowing of the pupil of the eye, hypotonia of the striated muscles and of the soft palate, etc. (Fig. 26), and the gastric muscles (Fig. 22, *b*).

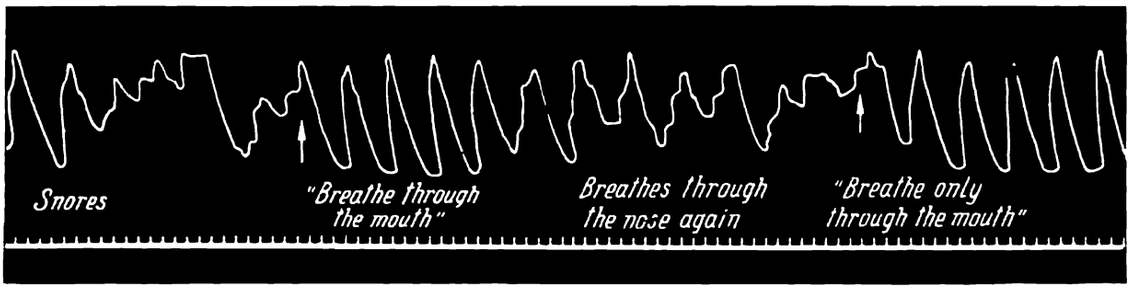

Fig. 26. Respiration during deep suggested sleep.

Let us consider the phenomena and states equally connected with the natural and suggested sleep (arterial pressure, pulse, etc.). Daily observations show very well that the sleeper can react to certain external stimulations and that the depth of his sleep is usually determined precisely by the extent to which he perceives the stimulations of a particular force. Thus, the sleeper does not lose connection with the external world and in some manner or other reacts to these stimulations. In connection with this, the problem of the possibility of similar reactions by persons during suggested sleep is also of certain interest.

In the specially conducted studies we used various stimuli, putting the subject to sleep by the command: "Fall asleep" and "Sleep," i.e., without any other suggestions which might affect the depth of sleep or the nature of the reactions arising in the organism. We used sound stimuli of low intensity. They all provoked changes in the respiratory curve of the person under observation who was in a state of suggested sleep, but the stronger sound stimulations in the form of handclapping close to his ears, or a loud noise already provoked a respiratory reaction, although they did not awaken the sleeper (see Fig. 9).

Subject S. in the state of suggested sleep with a changed respiration and pulse, drop in arterial pressure by 10 points and post-hypnotic amnesia, i.e., with all objective signs of suggested sleep, retained the reactions of respiration and blood pressure to sound stimuli of a certain intensity, which

we also observed in other people. Thus, we saw the same in this respect in suggested sleep as in natural sleep.

Furthermore, many authors observe that persons in the state of suggested sleep sometimes dream. We and our associates not infrequently observed this phenomenon, but the emergence of dreams did not derange the established isolated rapport, i.e., the reaction only to the words of the hypnotist.

The dream of subject M., which occurred during suggested sleep, was accompanied by a derangement in the character of respiration and its rhythm (see Fig. 25). Since subject M. could not reproduce the content of his dream after awakening, we induced light sleep again and by means of elimination disclosed the content of this dream: subject M. dreamed of flying woodcocks (he is an amateur hunter and talked about woodcocks three hours before the session).

It will be observed that old hypnologists succeeded in artificially producing dreams in the state of hypnosis by various stimuli applied to the peripheral receptors. We also managed to provoke dreams artificially during suggested sleep by sound stimulations, compressing the extremities, pressure in the region of the upper arms, drawing circles with a dull weapon along the surface of the skin, etc. Dreams of a corresponding content were provoked in each of the subjects, which can be judged by the external reactions during suggested sleep and by the accounts of the subjects after awakening. Sometimes, they told us about their dreams without any corresponding leading questions. A. Lents (1927) similarly provoked dreams without suggesting their content and recently (1952) this was done by I. Volpert who used an improved method.

The following is a case (reported by our associate S. Neimer) when the dream was conditioned by a sound stimulus. Working at a Gorlovka mine and administering psychotherapy to a patient suffering from a serious neurosis, the author once put her to sleep in the dispensary of the mine. During hypnotic sleep two loud whistles following one another were heard in the neighbouring yard. During the second whistle the patient started, slightly rose without opening her eyes and exclaimed: "Oh, God!" She was pacified by a corresponding verbal suggestion. Questioned during suggested sleep she related that during the first whistle she had dreamt she was at a railway station and was getting out of a carriage on to the platform, while during the second whistle, she had dreamt that she was in the way of a locomotive coming along the neighbouring track.

A genetic bond between the content of the dream and external stimuli (of all sense organs) has been established by many investigators: Mory, Sante de Sanctis, Gregory, et al.[1] Thus, the cerebral cortex of the sleeper can be influenced by verbal stimulation during natural sleep and the content and character of the dream thus predetermined.

There are indications that in certain cases suggestions may be also made during natural sleep and that these are effectuated after awakening (J. Jackson, 1926; Schilder, 1928; Schultz, 1925). It will be noted that in people accustomed to hypnosis it is possible to provoke the same reactions to the words of the hypnotist during their natural sleep as during suggested

[1] Quoted from Moll, 1912.

sleep. This retention of the rapport in natural sleep observed by the old hypnologists is also confirmed by our observations.

Thus, a patient who was treated by hypno-psychotherapy in our clinic effectuated during his nocturnal sleep the suggestions of the physician who treated him (observation by P. Kryuchkovich). Some hypnologists, for example, O. Wetterstrand (1893) made suggestions also during natural sleep.

Furthermore, one of our subjects, K., 63 years old, called our attention to the following phenomenon very frequently observed by him: he often fell asleep surrounded by his family as his wife read aloud to the children. Taking little interest in the reading, he always fell asleep in the beginning of the reading and usually slept, snoring, for 30 to 40 minutes. If the reading continued during his sleep, he remembered all that was read.

There are reasons to believe that in this case a conditioned reflex bond was formed while the cerebral cortex was in the intermediate (phasic) state (in the order of a "natural rapport"). This type of phenomena must not be ignored. Moreover, on the basis of these data we must warn adults against loud conversation where there are sleeping children, because the sleepers are not devoid of the faculty of perception during sleep, as was the case with the aforesaid subject.

Furthermore, as many authors observe, during protracted suggested sleep the subjects frequently show *motor reactions* similar to those appearing in usual sleep (sighs, changes in the position of the body, snoring, various types of vocal reactions, etc.), apparently conditioned by stimuli of an endogenic or exogenic nature. Suggested sleep in the daytime is accompanied by more motor reactions than nocturnal sleep, which may be due to deeper inhibition during nocturnal sleep.

The following observation made by us, which is also interesting in other respects, may serve as an illustration of the foregoing. Subject S. was in a state of suggested sleep for over two hours. She slept quietly, rarely making small movements with the head or extremities, or changing her position. But towards the end of the last half-hour her sleep was disturbed, which manifested itself in frequent movements of the head from side to side, sighs, guttural sounds, etc. We thought that the subject was dreaming of unpleasant things and we asked her: "What is troubling you?" She answered: "I am afraid I will miss the train." Further questioning revealed that she had to go back to the suburbs, that the train departed at 1:20 p.m.; that was why her sleep was disturbed one hour before that time.

This example shows that a motivation of reactions is possible in suggested sleep as it is in natural sleep and (a readiness to react in a definite direction) independent of the rapport zone.

We must now point out many other phenomena which we also encounter frequently. These are the customary reactions during awakening, observed when a person is coming out of natural nocturnal (or diurnal) and suggested sleep: difficulty of awakening, stretching, eye-rubbing, rubbing the face with the hands, coughing, light dizziness, etc. The subjects and persons closely related to them state that these phenomena are customary to the subjects during their morning awakening. Thus we had a case when it was particularly hard to bring the sleeper out of suggested sleep for ten or

fifteen minutes. It appeared that it was as difficult to awaken this person at home in the morning.

The same should be said about the customary conditions of falling asleep which ordinarily aid in hypnotization. We could not put to sleep a certain alcohol addict for a long time. Finally, taking into consideration his habit of going to sleep (at night) with a book, we gave him a book and asked him to read to himself. After several words suggesting sleep by us, his book fell out of his hands and he fell asleep.

It will, lastly, also be observed that for the speediest onset of suggested sleep, it should be induced at the end of the day when under the influence of fatigue the tone of the cerebral cortex is more or less reduced, and inhibition is much more easily irradiated over the entire cerebral cortex. In addition to this, the position in which the person usually naturally falls asleep also facilitates the development of suggested sleep. By virtue of this, we use the customary sleeping position as an over-all conditioned reflex sleep stimulus.

How does suggested sleep differ from natural sleep? The differences are very essential and apparently consist in the following:

1. A transitional, phasic state of the cortical cells and the presence of a centre of concentrated excitation (rapport zone) created by verbal suggestions and maintained throughout the period of suggested sleep is specific of suggested sleep which is, as a rule, a partial hypnotic sleep. The presence of a *rapport* which ensures the possibility of continuous verbal contact between the hypnotist and the subject, and the presence of *heightened suggestibility* are therefore observed in suggested sleep: these constitute the necessary conditions for successful verbal suggestion.

2. Furthermore, unlike natural sleep, suggested sleep is based on a process of a functional division of the cerebral cortex into sleeping and waking sections. Thus, the hypnotic verbal suggestion which leads, in a limited section of the cerebral cortex, to the formation of a centre of concentrated excitation, playing under these conditions the very important role of a wakeful rapport zone, simultaneously creates a diametrically opposed process of irradiation of inhibition in all other regions of the cortex.

3. Such concentrated excitation of a restricted section of the cerebral cortex with a weak and low tone of the cortex is accompanied by a strong negative induction which isolates this stimulation from all other influences. It is this that constitutes the basis of the physiological mechanism of heightened suggestibility so specific of the state of suggested sleep.

4. Whereas the depth of natural sleep depends on certain conditions of the somatic state of the organism and whereas we cannot control it, we can easily control the depth of suggested sleep. Stimulation of the wakeful section of the cerebral cortex, such as the rapport zone, produced by words which suggest sleep, leads with each repetition to a further deepening of the functional division of the cerebral cortex, i.e., to a still greater deepening of suggested sleep. The same stimulation produced by words of awakening, contrariwise, leads to a lowering of the concentrated excitation in the rapport zone and at the same time to a weakening of the intensity of sleep inhibition in its other regions, i.e., it aids in weakening suggested

sleep. This makes it possible to control the depth of suggested sleep and completely to terminate it at any moment at the will of the hypnotist.

5. Lastly, it will also be observed that under certain conditions suggested sleep may be artificially induced at any time of wakefulness precisely by a verbal stimulus. Its onset is not connected with fatigue (exhaustion) of the cortical cells.

All these constitute important features of the physiological state of suggested sleep distinguishing it from natural sleep.

INFLUENCE OF VERBAL SUGGESTION ON THE ACTIVITY OF THE CEREBRAL CORTEX

CHAPTER IV

GENERAL CHARACTER OF THE ACTIVITY OF THE CEREBRAL CORTEX DURING SUGGESTED SLEEP

> During suggested sleep, the tone of the cortex, i.e., the process of excitation at the disposal of the entire cortex is so weak, that as long as it concentrates on one stimulus, there is nothing left in another spot and all the other stimuli therefore have no effect.
>
> *I. Pavlov*

Whereas under conditions of natural sleep certain manifestations of higher nervous activity are, generally speaking, very limited, and their study encounters considerable technical difficulties, in the state of suggested sleep the picture of cortical activity may assume sufficiently extensive complexity and multiformity and its study is therefore undoubtedly of great interest.

We thus see that the nature of both physiological states—natural and suggested sleep—is the same. They are based on sleep inhibition.

Since suggested sleep is a state of incomplete sleep (partial sleep with a rapport zone), we must solve the question of whether it is really a state of "rest" of the cortical cells, i.e., a state of lowered activity of the cerebral cortex beneficial to the organism and restorative of the efficiency of the cortex.

Searching for the answer to this question, we traced the effect of suggested sleep on the analysis and synthesis exercised by the nervous system and on the processes of restoration. For this purpose A. Matskevich (1930) conducted an experimental psychological study. This work has shown that after 20 minutes of suggested sleep the processes connected with the analytical and synthetic activity are intensified. The special studies conducted by M. Ksenokratov (1935) showed that the hypnotic state "leads to a post-hypnotic righting and improvement of attention," i.e., to an improvement in the processes of concentration of excitation and inhibition in the cerebral cortex.

According to A. Matskevich, the time spent on an associative experiment diminishes after prolonged suggested sleep, while the productivity of work rises (checked on 11 subjects). All this warrants the conclusion that pro-

longed suggested sleep really leads to a restoration of the functions of the central nervous system weakened by preceding work.

Special studies conducted by us jointly with A. Matskevich (1931) showed that the transfer of the subject into a state of suggested sleep for a certain period of time (ten or twenty minutes) aids in restoring the functions of the nervous system reduced by alcoholic intoxication.

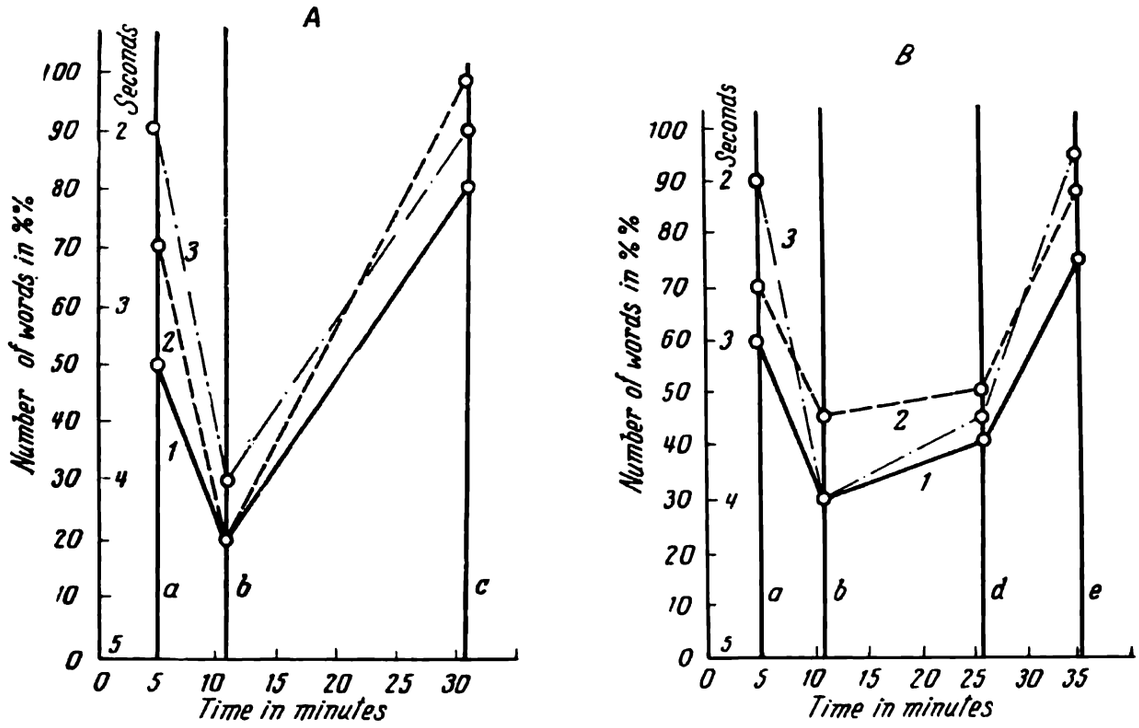

Fig. 27. Restoration during suggested sleep of the higher nervous activity deranged by consumption of alcoholic beverages.

A—first examination; *B*—second examination.
On the abscissae—time in minutes; on the ordinates—number of correct speech reproductions in per cent; total number of speech reproductions in 3 minutes and latent period of reaction in seconds. Ordinate *a*—normal state; ordinate *b*—6 minutes after consumption of 150 ml. of 40-proof portwine; ordinate *c*—20 minutes after onset of suggested sleep; ordinate *d*—20 minutes after consumption of alcoholic beverages; ordinate *e*—10 minutes after onset of suggested sleep. *1*—curve of the number of correct speech reproductions in per cent; *2*—curve of the number of speech responses in 3 minutes; *3*—curve of the latent period of speech reaction.

The diagrams in Fig. 27 show the data of two studies in which the criteria of the state of the analytical and synthetic activity of the nervous system were: the number of correct verbal response reactions in per cent (straight line), the total number of verbal response reactions in 3 minutes (dotted line) and the latent period of verbal reaction (line *3*).

During the first session (25. 6. 1929), after a preliminary determination of the normal state of the aforesaid functions (ordinate *a*), subject D., 38 years old, drank 150 ml. of portwine, six minutes after which the aforesaid determinations were repeated. A sharp drop in all the indices was observed (ordinate *b*). The same determinations in response to the words: "Sleep" and "Sleep fast," made after the subject had been in a state of suggested sleep for 20 minutes, showed complete restoration of the functions to their normal value (ordinate *c*).

During the second study (26. 6.1929), the subject was in a waking state for a period of 20 minutes after taking the same dose of alcohol and only

in the 21st minute was she put into a ten-minute state of suggested sleep. In this case, the state of the same functions was determined: in the beginning of the study, i.e., before the consumption of alcohol (ordinate *a*), 6 minutes after its consumption (ordinate *b*), then 21 minutes later (ordinate *d*) and, finally, after 10 minutes of suggested sleep (ordinate *e*). It will be observed that no words except "Sleep" and "Sleep fast," no other suggestions which might influence the state of the subject's nervous system were used as also in the first study.

Both diagrams clearly show the result of the alcoholic intoxication and the subsequent short suggested sleep of the subject: the analytical and

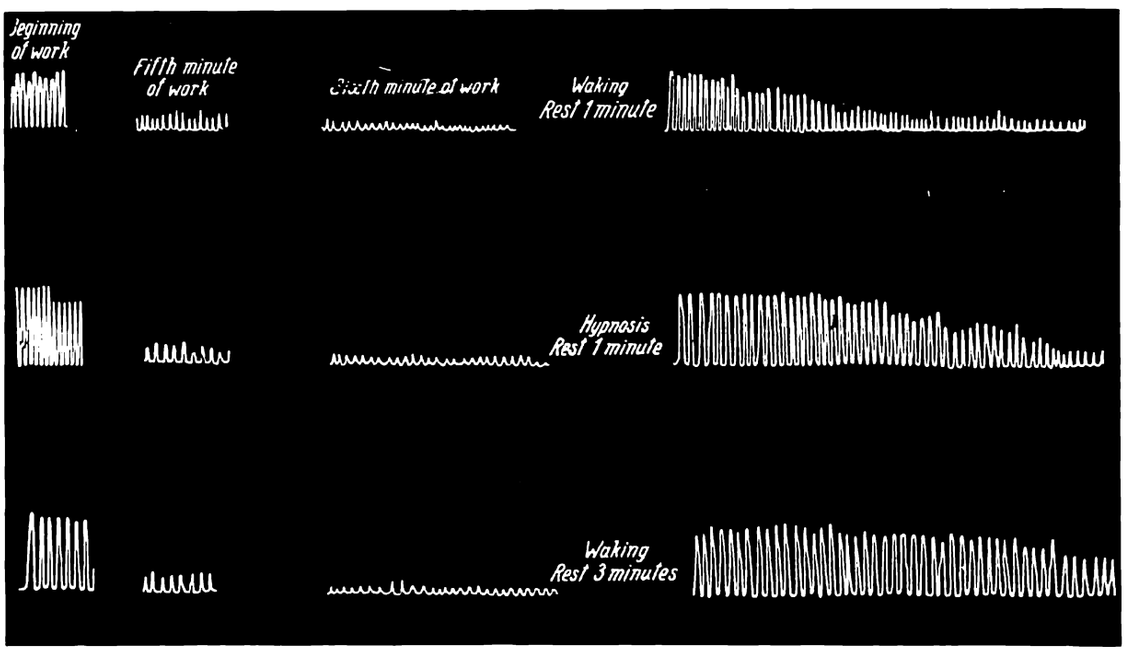

Fig. 28. Varying efficiency restored by equally long rest in the waking state and under hypnosis. Muscular contractions recorded by Mosso's ergograph.

synthetic activity of the nervous system was restored and even somewhat improved.

We thus see that suggested sleep aids in a more rapid neutralization of the action of alcohol. This conclusion is not unexpected, since it is well known that even short natural sleep may lead to a weakening of alcoholic intoxication much faster than this occurs in the waking state. Let us recall the similar data of R. Shlifer, who during suggested sleep lowered the arterial pressure raised by an injection of adrenalin, and the data of I. Vish, who observed a similar phenomenon with an injection of phenamine.

Further studies conducted by us in this relation have shown that a one-minute intermission in work effected under conditions of suggested sleep restores the efficiency of the muscles almost completely tired from lifting a 4-kg. weight (on Mosso's ergograph) nearly twice as fast as a break of the same duration in the waking state (Fig. 28).

Studies conducted by us jointly with A. Maistrova (1932) on the restoration of pulmonary ventilation after certain physical work showed that during suggested sleep this occurred twice as fast as during wakefulness (after the same work done during the same period).

V. Zdravomyslov (1938) showed that suggested sleep had a positive influence on the contractile activity of the womb, which is apparently a result of a positive induction of subcortical activity.

Thus, to sum up what was said both here and in the preceding chapter, we must recognize that, while sleep inhibition develops in the cerebral cortex of man under the influence of the words: "Go to sleep" and "Sleep," changes in the direction of vagotonia arise in his vegetative nervous system. The fact that we can regulate the depth of suggested sleep by corresponding suggestion is important. This peculiarity must be expediently utilized in practice.

Thus, each time barbital is administered it should be accompanied by words of hypnotic content thus enhancing the action of the barbital and sometimes imparting hypnotic action to an indifferent substance. The person administering an anaesthetic must also add words of hypnotic content to the chemical anaesthetic thus aiming to reduce the dose of the pharmacological anaesthetic because in this case the verbal stimulus reinforces the basic chemical agent by augmenting its action. By adding words of hypnotic content to the pharmacological agent, we elaborate conditioned reflex sleep in response to a suggestion. Subsequently, the conditioned stimulus replaces the chemical agent and supports its action. By lulling children or putting patients to sleep, we can deepen their somnolent state, remembering that a suggested word provokes corresponding physiological and biochemical changes in the entire organism.

We believe that tranquillizing the patient in the waking state is already the initial, weakest degree of inhibition, and we learn from experience that the pacifying words themselves really produce changes in the state of the cortical cells beneficial to the organism. The word "Quiet" alone favourably changes the activity of the heart (see Fig. 65).

These data exhaust the material at our disposal and confirm that the state of suggested sleep is a state of anabolism which ensures the possibility for restoring the normal functional level of the cortical cells weakened by prolonged work, intoxication, etc.

If suggested sleep is not a state of anabolism how then can the state of general alertness and freshness, observed in all those who are awakened from suggested sleep, be explained? How can sobering up from alcoholic intoxication resulting after 10 minutes of suggested sleep be explained?

At the same time the facts we have cited indicate that the idea prevailing for a long time to the effect that hypnotic sleep is harmless for the nervous system, in particular for the higher psychic functions, is devoid of any basis in fact. Further study of the physiological mechanisms underlying it and a search for new ways of mastering the possibilities for conscious control of the metabolic, restorative and other processes in the organism are necessary. K. Bykov suggests that the "mechanism of the influences of the cerebral cortex on metabolism, the ways in which these influences are effected, their significance (normal and pathological) are questions, the study of which has hardly begun and the answer to which may greatly surprise us."[1]

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[1] K. Bykov, *The Cerebral Cortex and the Internal Organs*, Moscow, Russ. ed., 1947, p. 121.

ACTIVITY OF THE CEREBRAL CORTEX AT VARIOUS STAGES OF SUGGESTED SLEEP

We shall now consider the nature of the activity of the cerebral cortex during rather deep suggested sleep.

The depth of suggested sleep was always determined by the ability to perceive the verbal influences of the hypnotist and the presence of amnesia with reference to all that was experienced during suggested sleep. V. Bekhterev believes it the most convenient practically to distinguish 3 stages: light hypnosis, medium hypnosis and deep hypnosis.

Under *light* hypnosis the subject experiences a weak influence of hypnotization; he is able to resist the influences of verbal suggestion and to perform movements independently; he does not lose connection with his surroundings and in a drowsy state feels a certain weakness in parts of his body and a heaviness in the eyelids.

Under *medium* hypnosis (so-called hypotaxia) the patient cannot by himself emerge from the motor torpidity which has embraced him, there is a certain dulling of the sense organs and he passively obeys the acceptable suggestions of the hypnotist, partly retaining them in his memory. Phenomena of catalepsy (a stable passive retention by the subject's extremities of the position imparted to them) are sometimes observed. The patient retains his orientation in the surroundings and after awakening, in most cases, remembers some of the suggestions made to him.

Lastly, *deep* hypnosis is characterized by an external picture of deep sleep, complete lack of orientation in the surroundings and after awakening no recollections of the suggestions made to him (if no special suggestion was made to remember them). In this case a considerable diminution of the functions of the perceiving organs is noted and verbal suggestions of most varying content are effectuated (with respect to the mind and body). The verbal suggestions are effectuated both during the hypnotic sleep, and are completely forgotten after awakening, and after awakening at the time assigned by the suggestion (so-called post-hypnotic suggestion). This state is known as the somnambulistic phase of hypnosis.

The signs of the various stages of suggested sleep, which are of practical interest, were recently systematized in sufficient detail by Y. Katkov (Laboratory of Higher Nervous Activity of the Kharkov Pedagogical Institute, 1941) who had the data of the studies made on 100 healthy people (students of higher schools). Y. Katkov's scheme (see Supplement) shows the successive stages in the development of suggested sleep; the scheme has made use of the data of Pavlov's school.

It may be assumed that the paradoxical phase occurs precisely during the somnambulistic stages of suggested sleep because in this case there is an especially distinct reaction to verbal suggestion and the suggested actions or states are quickly effectuated. This stage of suggested sleep usually emerges immediately, right off the reel, and may be stably supported by corresponding verbal suggestions. At the same time, it is apparently in the somnambulistic stage that it is possible to obtain the perverted reactions which we shall describe below (Chapter VII).

The physiological mechanisms underlying any particular stage of suggested sleep are not very well known as yet. Interesting attempts to study

the somnambulistic stage were made by F. Maiorov (1950) and his associates M. Suslova (1940, 1952) and A. Marenina (1952). According to their data it is not a state of deep sleep but rather the *deepest dissociation of cortical activity* which is specific of this stage. These studies also throw light on some physiological mechanisms of dissociated activity of the cerebral cortex and certain mechanisms of post-hypnotic amnesia.

It will be observed that subjective experiences, being restricted and modified during various depths of suggested sleep, also have their qualitative peculiarities. A description of this state made by the subject himself after awakening is not devoid of interest in this respect.

The following is one of these descriptions.

"When I am in a state of hypnosis," writes a woman patient, "I experience different sensations at each session. Thus during the first session I continued to feel my entire body but was unable to move a single member and though I clearly heard the voice of the hypnotist and was conscious of everything my thoughts were in a sort of muddle. This was what I should call *bodily* sleep. At each successive session my body grew increasingly heavier, I no longer felt it, though I continued to hear all that was going on and it seemed to me it was all happening somewhere far away, I was not quite conscious of it, and it was all absolutely immaterial to me.

"During the last, fifth, session I no longer felt my body at all, as if I had none. Nor could I think of anything. I had no thoughts at all. I heard various external sounds which did not concern me in the least. During suggestions I heard everything clearly, but my mind failed to work, and the words of suggestion relating to my former experiences in no way affected me.

"At the words of awakening, I begin to awaken at first from the head, as it were: thoughts rise in my mind, I begin to think about how to move, to get up; I understand everything that takes place around me, but begin to feel my body somewhat later; as my consciousness clears up, I begin to feel a heaviness throughout my body, which subsequently dissipates upon complete awakening."

Thus, it appears from the foregoing that the basic peculiarities of the activity of the cerebral cortex manifesting themselves in the state of suggested sleep are as follows:

1. In addition to the division of the cerebral hemispheres into sections of sleep and wakefulness typical of the hypnotic sleep of an animal, there is also a functional dissociation of the two signal systems and within the second signal system.

2. The activity of the second signal system under these conditions is not only confined to the narrow framework of the rapport zone, but is also frequently of a *passive* nature being directly dependent on the verbal influences of the hypnotist. Outside *these influences there is no (or hardly any) activity.*

3. A considerable increase in the coupling function with respect to the stimuli of the second signal system is noted at the same time in the rapport zone. This especially favours the formation of new cortical dynamic structures under the verbal influences of the hypnotist, these structures

representing the physiological basis for effectuating the suggested actions and states.

The foregoing peculiarities manifest themselves in the fact that the entire *external* second signal activity of the subject *is reduced only to direct answers to the questions of the hypnotist* with no independent reactions to any influences, including verbal, coming from other people (so-called isolated rapport). This is understandable, since the activity of the second signal system lying outside the rapport zone is inhibited. The intracentral relations connected with the subject's second signal activity assume an entirely special character which manifests itself in the *exceptionally strong influence of the hypnotist's words.* It will be noted that the verbal influences of the hypnotist may usually be firmly fixed in the cerebral cortex of the subject in the form of certain cortical dynamic structures unconnected with similar former structures.

This last circumstance is due to the fact that the rapport zone is isolated from all other regions of the cerebral cortex inhibited by force of the negative induction. Only those sections of the cortex are temporarily and partly disinhibited which are involved in the reaction to the special words of the hypnotist. Due to this, the latter really have a predominating significance, i.e., they assume the force of a suggestion.

How is the activity of the subject's first signal system characterized under these conditions?

The higher nervous activity of the subject is subservient to the activity of the second signal system and through it to the influences of the hypnotist. Under these conditions, the first signal system is to some extent inhibited and a change in the character of the coupling and analysing function in the sections of the cortex provoked to activity by the content of the hypnotist's words is observed. For this reason these words may completely exclude the activity of separate analysers or easily give rise to their hyper- or hypo-function in these sections of the cortex.

Thus, during suggested sleep the higher nervous activity is determined by the stimulations of the hypnotist. For the subject the entire external environment is confined to the influences of the hypnotist. In this case, even the unconditioned reflex activity of the subject is, in large measure, and sometimes fully, subordinated to these influences.

What is the nature of the subcortical activity of the subject during suggested sleep?

His subcortical activity apparently also lacks the vigour it has in the waking state and is likewise subordinated to the hypnotist's influences which reach it through the cerebral cortex; in this way, the activity of the subcortex can either be completely inhibited, changed in force or even distorted.

Thus we see that the activity of the cortex and the subcortex under conditions of suggested sleep sharply differs from that in the waking state.

As to the problem of the peculiarities of the conditioned reflex activity during suggested sleep, it will be noted that this problem has not been very extensively studied as yet. Nevertheless, the data of various authors are of indubitable interest, since they have revealed a number of specific peculiarities in the state of the higher nervous activity under these conditions.

According to these data the conditioned reflex activity in suggested sleep undergoes certain changes. Thus, S. Levin observed in his early studies (1931) that in children under conditions of suggested sleep the motor and secretory conditioned reflexes elaborated earlier in the waking state grew very much weaker and that there was a dissociation both between the motor and secretory conditioned reflexes and between the unconditioned reflexes of salivation and mastication; he also observed the transitional (phasic) states—paradoxical, ultraparadoxical and inhibitory phases, all the way to the onset of complete sleep.

I. Nevsky and S. Levin (1932) have shown the salivary glands, provoked to activity by suggestion in hypnotic sleep in response to certain suggested substances, i.e., by the mechanism of the usual conditioned reflex, secrete more abundantly than during a similar suggestion made in the waking state. This also indicates that the cortical cells are capable of more vigorous activity during suggested sleep than in the waking state.

According to Y. Povorinsky and N. Traugott (1936) the inhibition of the conditioned reflex bonds during suggested sleep varies in different subjects to the point of their complete disappearance. Upon awakening, the conditioned reflexes are not immediately and not completely restored in most of the subjects, and this pertains both to the first and the second signal systems, with the speech reactions inhibited first and restored last.

The studies of R. Pen and M. Jigarov (1936) show that in light suggested sleep the formerly elaborated conditioned reflexes are retained, but are weakened and their latent period is increased. In this case, successive inhibition from differentiating stimuli is observed. Awakening is followed by a concentration of the inhibitory process.

As for the formation of new conditioned reflex bonds pertaining to the first signal system in a state of suggested sleep, the data of these authors show that in light sleep it is possible though rendered difficult; in deep sleep, the formation of new conditioned reflexes related to the first signal system is impossible.

Y. Povorinsky's data (1937) indicate that the conditioned reflexes elaborated in the waking state have a longer latent period during suggested sleep and in some subjects they are completely absent. Under these circumstances, the reactions to the verbal influences of the hypnotist are retained even during the deepest suggested sleep. The more complex and ontogenetically later conditioned bonds of the speech-motor analyser are inhibited first as the subject lapses into a state of suggested sleep and are disinhibited the last as the subject awakens from this state.

The data of I. Korotkin, F. Maiorov and M. Suslova (1951) show that the conditioned reflexes elaborated in the waking state disappear during the somnambulistic phase of suggested sleep; they manifest themselves, however, if the subject changes to a light drowsy state. The unconditioned reflexes also undergo changes in deep suggested sleep, diminishing in magnitude, but during the transition back to a light drowsy state, they increase to their initial normal value. No new conditioned reflexes are developed during the somnambulistic phase of suggested sleep.

N. Krasnogorsky furthermore observes (1951) that the emergence of vast inhibited fields in the cerebral cortex during suggested sleep naturally cannot fail to influence the other cells and divisions of the cerebral hemi-

spheres in which various changes of excitability and activity may be produced. He emphasizes that in this case the conditioned reflexes effected by the cells lying in the rapport zone may be greater than in the waking state. In Krasnogorsky's opinion this is due to the fact that the activity of the wakeful divisions of the cortex acquires greater force because of the induction influences from the inhibited fields. At the same time the other conditioned reflexes connected with the cortical cells lying outside this wakeful zone are more or less retarded.

According to Krasnogorsky, new conditioned reflex bonds may be elaborated successfully by all the cells of the cerebral cortex wakeful under these conditions. The author believes that "during these divided states of the cerebral cortex stable bonds between the wakeful cortical and subcortical systems may arise."

B. Pavlov and Y. Povorinsky observe (1953) that the conditioned bonds reinforced by the words of the hypnotist are formed during suggested sleep faster than in the waking state. In this case, during the somnambulistic phase of suggested sleep verbal reinforcements, as a rule, provoke a stronger and longer reaction with a shorter latent period than a direct first signal stimulus.

The aforesaid authors also observe that in the waking state the conditioned motor reaction, as a rule, corresponds more to the direct stimulus than to the verbal; in suggested sleep it follows the verbal stimulus of the hypnotist to a greater extent and in this case it frequently arises at once. Thus, the processes in the cerebral cortex connected with the activity of the second signal system in the *rapport zone* are stronger and more labile during suggested sleep.

However, if the verbal stimulus comes from an outside person, the responsive motor reactions in the somnambulistic phase of suggested sleep are either completely absent or are considerably less pronounced than in response to a corresponding direct stimulus, while the latent period of the reaction is longer. At the same time, if the verbal stimulus comes from the hypnotist under these conditions, it evokes an even stronger reaction than the first signal conditioned stimulus on the basis of which it was elaborated.

Moreover, the formation of temporary bonds in response to direct stimuli (as to the verbal stimuli from an outside person) occurs *more slowly* during suggested sleep than in the waking state.

It is also interesting that the conditioned bonds formed during suggested sleep manifest themselves, as a rule, only in this state and are absent during the period of wakefulness. However, if a special verbal suggestion is made during suggested sleep to react upon awakening the same as during suggested sleep these conditioned bonds are retained after awakening. This indicates that the nature of conditioned reflex activity *can be modified* by verbal suggestions.

It will be, furthermore, noted that according to B. Andreyev (1941), suggested sleep weakens at the moment a verbal suggestion is made; Y. Povorinsky (1937) believes that suggestions of hallucinations during hypnotic sleep deepen the inhibitory state of the cerebral cortex which may be due to the appearance of a new focus of excitation through verbal

suggestion, this focus augmenting the inhibition in the other sections of the cerebral cortex in conformity with the law of negative induction.

The studies of F. Maiorov (1950) and M. Suslova (1948) show that during the somnambulistic phase of suggested sleep the number of correctly performed additions (in a psychological experiment) considerably decreases, i.e., the number of mistakes increases. This testifies to the fact that under these conditions inhibition has also spread to the second signal system.

According to N. Krasnogorsky (1951), the extent of inhibition of the activity of various analysers during suggested sleep may differ. Thus, while one of his subjects did not react to light in the somnambulistic phase of suggested sleep at all, the reactions of her auditory analyser not only failed to weaken but on the contrary appeared much stronger.

All of the above testifies to the considerable changes in the character of cortical activity regularly occurring during suggested sleep and determining, on the whole, the specific nature of higher nervous activity, the systematic study of which should be the object of further research.

SUGGESTED REST DURING HYPNOTIC SLEEP

We shall now consider the special state that can be created during suggested sleep by a special suggestion of deep rest.

In his studies A. Matskevich (1930) indicated the great positive importance of suggesting a complete state of rest to the subject.

Thus, according to A. Matskevich, after the verbal instruction to the subject: "You are now resting," the functions of the higher divisions of the nervous system of the subject improved more than when only the usual instruction: "Sleep fast" was issued.

It was revealed at the same time that during the period of suggested sleep full bodily rest and peace of mind did not always take place and, correspondingly, the subject did not always completely fail to react to certain indirect external and internal stimuli.

We have already mentioned the observation that subject S., who had been in a state of suggested sleep for a long time suddenly began to manifest signs of disquiet and that this was due to one extrinsic reason: at the end of the session she had to go to the suburbs and she was afraid lest she miss the train. She thought about missing the train an hour before being put to sleep and this factor came to the fore during suggested sleep (an hour before the departure of the train) in the form of a signal from the "sentry post" that had emerged and continued to be awake.

Below we are citing a similar example of disquiet which manifested itself during suggested sleep under the influence of an interoceptive stimulus.

The data of O. Gordon (1946), who studied the state of gastric secretion in patients with a gastric fistula under special conditions of deep rest during suggested sleep, are particularly interesting for the analysis of the phenomena of suggested sleep. These were patients with an artificial oesophagus and a disconnected but perfectly healthy and non-resected stomach. The studies were conducted in M. Pevzner's Medical Diet Clinic.

The following is an example.

Patient N. had an operation on the antethoracic oesophagus through which she was quite successfully fed for a period of several months. The patient easily submitted to a hypnotic suggestion and could remain in a state of deep suggested sleep for hours at a time. This made it possible to study her gastric secretion under conditions when in addition to the usual physical quiet it was also suggested to her while she was in a state of suggested sleep that she was in a state of absolute rest and was tranquilly asleep. This state was characterized by complete relaxation of all the skeletal muscles, quiet even respiration and a rhythmic and slow pulse. It was observed at this time that the gastric secretion, which began noticeably to decrease in the beginning of the suggested sleep, after the suggestion of a "state of absolute rest" soon and sometimes immediately completely ceased. This continued throughout the period that the patient was in a state of suggested "absolute rest" which sometimes lasted up to 2 hours.

But if this "state of absolute rest" was interrupted for the sake of control by a suggestion of activity (for example it was suggested to her that she was having a palatable breakfast—her favourite rice curry or a steak smothered in onions) she immediately began to produce a vigorous gastric secretion with a very high juice acidity. Under the circumstances, the patient grew lively, was joyously excited and her face, until then serene, reflected the pleasure of eating a palatable dish.

These studies have led us to the recognition of the extraordinarily great importance of a special physiological state of deep rest specially created by verbal suggestion.

It must be especially emphasized that natural sleep does not always put all the organs and systems of man into a state of complete rest. During natural sleep latent foci of excitation, conditioned by the psychotraumatic influences remaining from the waking state (or newly emerged), may not infrequently be retained in the cerebral cortex. Owing to this, the changes in the nature of the cortical dynamics caused by them may remain unequalized and may therefore lead to an unbalanced state. All this cannot fail to affect the internal organs and skeletal muscles which partly continue to retain their somewhat higher tonus during sleep despite the general conditions of rest. This usually manifests itself in the fact that natural sleep is in these cases disturbed or shallow, accompanied by dreams, movements, etc.

It is precisely for this reason that it is necessary to exert special influence on the subject's cerebral cortex by a verbal suggestion that his organism "is in a state of complete rest" during which "all of the experienced emotions have been fully eliminated," while his brain and all organs and tissues are rapidly and fully regaining their functions. Thus the first step in the verbal suggestion puts the person from his usual waking state into a state of suggested sleep, while the second step in the suggestion creates special conditions for deep rest during this suggested sleep.

By using this method for many years we have had ample opportunity to convince ourselves that the physiological state of "deep rest during suggested sleep" really exerts enormous influence on the higher nervous activity of the persons we have studied. This was apparently conditioned by the fact that the words of suggestion: "You are now in a state of deep rest" led to the emergence of corresponding physiological and biochemical

changes in the cortical activity of the subject and, hence, throughout his body. These changes are based not only on a physiological mechanism of reproducing the traces of a state of the deepest and most complete rest experienced at some time in the past, but also on the principle of abstraction and generalization specific, according to I. Pavlov, of the second signal activity and leading in this case to the formation of a corresponding complex dynamic structure of a "state of complete rest."

The subject must remain in this state of deep rest during suggested sleep for some time (from 30 minutes to 1 hour and more). Experience has shown that 1 hour of this state, in most cases, provided maximum rest for the entire organism. This prolonged state of suggested deep rest is extraordinarily beneficial not only to the cortical dynamics and the entire higher nervous activity as a whole, but also to the functional state of all tissues and organs and the entire vegetative and endocrine system.

There is no doubt that verbal suggestion aimed at creating deep rest provokes by conditioned reflexes extensive and profound biochemical changes in the subject's body connected with the real unconditioned physiological state of rest with which the cerebral cortex certainly has numerous trace bonds based on past experience. Therefore, the suggestion: "Your body is now completely resting" really puts the body into a state of complete physiological rest. The latter, as is well known, is characterized by an absence of external manifestations of specific activity and changes in the cells (usually expressed in the form of secretions, mechanical effects, etc.). However, under these conditions there is a special and specific activity in the cells during apparent rest. Thus, there is constant preparation of the secretion in the glands while in the muscles there is a series of successive invisible phenomena for the future mechanical work. As K. Bykov observes (1947), this state of physiological rest "apparently requires a very low energy output" while achieving the level of rest largely depends on cortical stimulations.

What physiological mechanisms underlie the emergence of the state of "deep rest" caused by suggestion?

The experimental studies specially conducted by us warrant the assumption that verbal suggestion creates through the rapport zone a concentrated focus of excitation specially aimed at reinforcing the *restorative* function of the cerebral cortex. This function of the cortex is being most fully studied by G. Volborth (1951) and his associates.

We assume that the high effectiveness of suggested deep rest may be due to the maximum activation of the restorative function of the cerebral cortex effected by a temporary exclusion of its other functions including the coupling and analysing functions.

To the investigator the creation of deep rest during suggested sleep is not only of indubitable theoretical interest, but also of great practical importance.

CHAPTER V

COUPLING FUNCTION

> ...Nervous coupling is the first nervous mechanism which we encounter in studying the functional activity of the cerebral cortex.
>
> *I. Pavlov*

We shall now consider the influences exerted on the cortical processes through the second signal system. We shall begin with the problem of verbal action on the coupling function of the cerebral cortex.

In the first place we were particularly interested in whether it was possible to change or even completely remove by verbal suggestion the formerly existing conditioned bond and in the conditions under which the verbal suggestion was effectuated, i.e., the coupling of the arc of man's most typical conditioned reflex represented by verbal action.

First of all, we shall consider the data of our early studies conducted in this direction as early as 1910 in V. Bekhterev's laboratory and described in one of the chapters of our dissertation (1912).

For this purpose, we took advantage of the high suggestibility of two women under our observation since they rapidly lapsed into a state of suggested sleep with complete subsequent amnesia. A stable motor conditioned reflex was elaborated in both women in response to a sum of stimuli (light plus sound), and to each of these stimuli separately, on the basis of an unconditioned defensive (motor) reflex. The motor reaction (defensive movement of the left foot) to the sound (electric bell of medium intensity) was more vigorous than in response to the light (16-watt electric bulb).

After several attempts to test the stability of the reflexes the first of the subjects was put in a state of suggested sleep and the following suggestion was made to her: "Light and sound taken together or each separately do not stimulate you to move your foot." Upon awakening, a series of one-second light stimulations failed to provoke any reactions in the subject: the reflex appeared inhibited. This greatly surprised the subject, because until then she had never been able to hold this reaction back voluntarily. But the tests with a bell and with a sum of the stimuli (light plus sound) did provoke a motor reaction. And it was only a repeated and more vigorous verbal influence aimed at removing the reaction to the bell that

completely inhibited the motor reflex also in response to the sound stimulus. This was followed by a contrary suggestion: "Light and sound again stimulate the movement of your foot," as a result of which the reflexes both to light and sound were fully restored.

It would seem, of course, that in this case we could suspect simulation, but this was impossible because the subject, as previously stated, could not until then voluntarily hold back the movement of the foot; besides, she had elaborated so stable a conditioned motor reflex that it manifested itself also outside the laboratory, for example, at home when a dark room was suddenly illumined by a spark from a passing tram-car or by a bell rung purposely. All this provoked in her, according to her own expression, an involuntary "foot jerk."

The second subject had developed a similarly stable conditioned motor reflex. The peculiarity of the latter consisted in the fact that instead of the

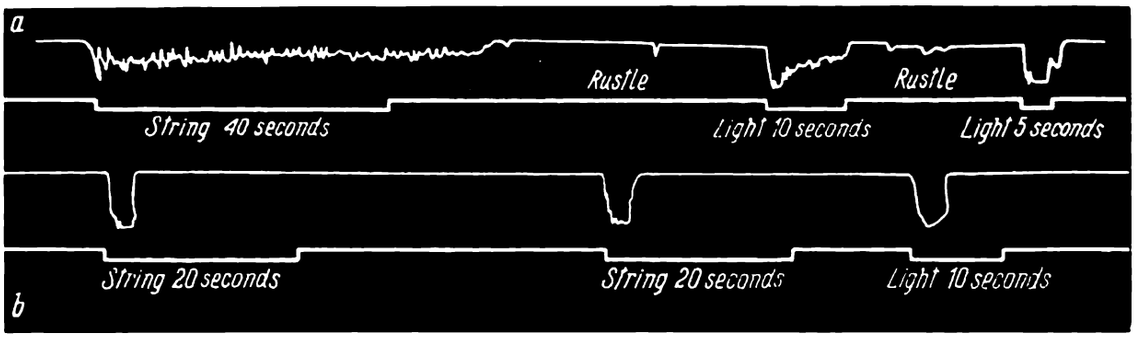

Fig. 29. Influence of verbal suggestion on formerly elaborated conditioned motor reflex. *a*—before verbal suggestion; *b*—after suggestion of equally calm attitude to both stimuli.

usual defensive reaction in the form of a single jerk (a rise and lowering) of the foot, the reaction to light and sound manifested itself in the form of clonic movements of the foot continuing from 10 to 15 seconds after termination of the one-second sounding of the bell. She showed the same reaction to the sum of the conditioned stimuli. But the very first session revealed that this peculiar clonic reaction was connected only with the conditioned sound stimulus (bell) and that it always continued after the bell ceased to ring. The strength of this reaction was equal to the strength of the stimulus which became particularly clear when the sound of the bell was replaced by the sounding of a string (at different scales): the motor reaction weakened correspondingly as the sound of the string faded, but the movements continued after the sounding of the string had ceased (Fig. 29, *a*). The reaction to a ten-second light stimulation was different—the movement of the foot ceased *simultaneously* with the termination of the light stimulation. This woman, like the first one, was never able voluntarily not only completely to suppress, but even to weaken, this motor reaction. According to the subject, "the foot moves by itself and there is nothing I can do about it."

In order to ascertain the possibility of changing the nature of the reactions to conditioned stimuli by suggestion, we made the following suggestion to the subject: "You will now react to light and sound more calmly and equally." After waking the subject, we began to stimulate her alter-

nately with the sound of a string and with the light of a bulb. The resulting reflexes were weaker, which corresponded to the suggestion (Fig. 29, *b*). A similarly positive effect was obtained by suggesting absolute insensibility to both agents; there were no reactions to either the sound of a string or the light.

It is interesting to note that the sound stimulations produced suddenly after termination of the session (in the course of a conversation outside the experimental cabin) also failed to provoke the foot jerk or the start of the whole body, whereas before the aforesaid negative suggestion these reactions did occur. Consequently, the negative suggestion continued to act after the end of the study as well. This influence was also retained on subsequent days. Restoration of the former reaction required a corresponding suggestion of an opposite nature, after which the former attitude of the subject to the same stimuli was immediately restored.

Though these studies were made only on two persons, they convinced us that suggestion *was a real active factor that modified conditioned reflex reactions* in any direction, suppressing them in some cases, reviving them in others and distorting them in still others.

At that time (1910) these studies were particularly important to us in connection with the questions of the influence exerted by verbal suggestion on man's higher nervous (psychic) activity in which we were interested. If a word could exert its influence on the behaviour of man, it followed that it also had to influence the elementary conditioned reflex activity, including the conditioned motor reflexes. The data obtained confirmed our assumption, thus laying a physiological basis for the understanding of the mechanisms of the complex system of influences exerted on the higher nervous activity by suggestion.

Similar studies in the same direction and confirming the results of our investigations were subsequently conducted by V. Bekhterev and N. Shchelovanov (1925), and by V. Bekhterev and V. Myasishchev (1926). They also established clearly enough the possibility of influencing conditioned reflex activity in various directions by a verbal stimulus both in the waking state and during suggested sleep.

It will subsequently be shown that the very hypnotic inhibition with its phases (especially with the paradoxical phase), i.e., without the state of suggested sleep as such, is also of great importance not only for experimental purposes, but also for therapeutic suggestions. As the data of I. Pavlov's laboratory and numerous clinical observations show, the hypnotic state also plays a rather important part in the process of formation of certain neurotic states, often manifesting itself under certain conditions independently, without the purposeful induction of suggested sleep. The hypnotic state, as we know, may vary in intensity, beginning with a barely perceptible "hypnoid" state, "hardly distinguishable from wakefulness" (I. Pavlov). The slightest drop in cortical tone, however, is likely to give rise to the paradoxicality of force relations under which heightened suggestibility is produced.

Running somewhat ahead, let us note that it is apparently just in this state that a stable fixation of the formed temporary bonds takes place, sometimes acquiring the character of pathological "inextinguishable reactions" of the type of so-called obsessions and that these psychogenically

emerging obsessions are conditioned by the verbal suggestive influence on the cerebral cortex in a hypnoid state with a lowered cortical tone. These obsessions can be removed by corresponding verbal suggestion with the cortical tone in the same lowered state, but only artificially created, in which they were formed. This is the essence of the *therapeutic* use of suggestion during suggested sleep.

We shall cite several typical observations to illustrate the foregoing. All of them contain a *coupling* of the conditioned reflex bond with the emergence of a corresponding pathological syndrome and the *removal* of this syndrome by the physician's suggestion. The active role of the suggestive verbal influence traumatizing the mind clearly comes to the foreground in some of the observations.

1. Patient K., 37 years old, barber in a military unit, complained that in the past five years he had been obsessed with fear which made it impossible for him to serve high-ranking officers. The moment these clients appeared in his barbershop, he became excited, experienced general weakness and a tremor in his legs and arms connected with his fear of cutting them. A polyclinic diagnosed: "psychasthenia." The various therapeutic means used all through that time proved of no avail.

An interview with the patient revealed the reason for the formation of this neurotic syndrome. One day he was shaving a high-ranking officer. After shaving one cheek, he went into the adjacent room to hone his razor, where the manager of the barbershop asked him in a somewhat anxious and warning tone: "Say, do you know whom you are shaving? He is the commander of our unit. Can't you see the three stars on him? Be careful you don't cut him."

"I seemed to be struck dumb at the word 'commander,'" the patient told us, "and I was obsessed with the idea that I might cut him. It was with difficulty and lack of confidence in my hand that I finished shaving him somehow, all atremble, and really almost did cut him. Since then I can no longer shave my clients with stars on their shoulder-straps; I tremble with fear...."

In this case a pathological conditioned reflex to the given situation was formed and became firmly fixed; the reflex manifested itself in discoordination of movements resulting from overwhelming fear.

It was precisely the definite *external signs* of the client, his rank insignia, that were responsible for the emergence of this reflex. When the patient had to shave the same commander dressed in civilian clothes, the foregoing pathological syndrome did not appear, and the hand of the patient manipulated the razor with the usual composure and confidence.

We made a suggestion to the patient while he was in a hypnotic state: "The excitement you have experienced in connection with serving high-ranking officers is gone and forgotten," "You are absolutely free of the fear connected with these cases, you are always composed, meet this category of clients calmly and shave them confidently." It took 3 sessions of hypnosuggestive therapy with a one-hour session of suggested rest in hypnotic sleep following each hypnotic treatment fully to remove this pathological conditioned reaction; a prophylactic verbal suggestion preventing the recurrence of such reactions in the future was also made. We subsequently traced a positive catamnesis for a period of ten years.

What was it in this case that fostered the formation and fixation of the aforesaid pathological conditioned reflex bond?

The answer to this question is given by Pavlov: "... what is psychologically called fear, cowardice and timidity has as its physiological substratum an inhibited state of the cerebral hemispheres and represents various degrees of a passive defensive reflex."[1] In another place he says: "This state is definitely related to the hypnotic state," the gradations of which are *"frequently hardly distinguishable from the waking state."*[2] (Emphasis by the author.)

As a matter of fact, in this case the words of the manager of the barbershop which provoked the affect of fear stupefied the patient and conditioned the formation (according to the physiological mechanism of suggestion) of a protractedly fixed temporary pathological bond to a certain complex conditioned stimulus such as the client with his definite military rank insignia.

It will be noted that the physiological substratum of the state of confusion is a lowered tone of the cerebral cortex in which a phasic state ("suggestion phase") is frequently developed. The removal of the temporary pathological bond by verbal suggestion effected by us in the same hypnoid state of the cerebral cortex in which it had been at the time the given pathological syndrome emerged may serve as proof.

The following is another example which seems very instructive to us.

2. Patient Z., 42 years old, chief book-keeper of a large concern, complained of spasmodic movements appearing in his right hand when writing, especially when signing bank cheques in the presence of outsiders. In addition to a tremor in the hand and cramps of the fingers, he also observed involuntary jerking of the fingers. Since these phenomena had persisted for a period of weeks, they warranted the patient's extreme anxiety and worry. It will be observed that the patient was quite composed when signing other documents.

Let us recall V. Bekhterev's words (1929) to the effect that "in people who deal with important acts which they must sign before the public, we sometimes encounter a special form of phobia consisting in a *fear of signing*. Nothing, apparently, betrays the morbid state here until the person has to sign his name. This immediately gives rise to inexplicable fear which increases more and more, the hands begin to tremble and the signature is so distorted that it becomes hardly recognizable or even not recognizable at all."

This symptom complex led us to the assumption that it was of a conditioned reflex origin. By means of an anamnestic conversation it was established that this phenomenon had developed gradually and had begun when the patient once had to sign hastily a large number of bank cheques for very large sums which, as the patient told us, "took place at the end of a working day when his head was tired from extremely strenuous work, hustle and bustle." Soon one of the large cheques already

[1] I. Pavlov, *Lectures on the Activity of the Cerebral Hemispheres*, Russ. ed., 1927, p. 360.

[2] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 330.

signed by the director of the concern was spoiled through the patient's fault. This caused the patient some trouble which increased his anxiety for the state of his nervous system.

The patient told us that while signing a cheque, he felt for the first time an involuntary jerk of the fingers due to which his signature turned out so unusual that the bank would not honour it. Since that time he had constantly felt unable to sign bank cheques especially when he had to do it in the presence of outsiders.

The patient repeatedly consulted physicians, but the various methods of treatment they used were of no avail, and the physicians finally advised him to change his occupation.

As we see, the development of the phenomenon of writing spasm, which arose for the first time under conditions of lowered cortical tone with sharp overstrain of the mobility of the basic cortical processes, occurred in the given case also according to the conditioned reflex mechanism. The patient signed these bank cheques many times on end under the same circumstances that had traumatized his mind. This had set up all the necessary conditions for the formation and firm fixation of a pathological (kinaesthetic) conditioned reflex which fixed itself so firmly that the patient was no longer able to do away with it by an effort of his own will.

Reassuring explanatory psychotherapy was administered, ending in 3 sessions of imperative suggestions of a corresponding content: "Your anxieties are over, the spasmodic phenomena arising in the right hand when signing cheques have stopped and can no longer recur; you feel good. You are well and everything is in order," etc. The suggestions were made while the patient was in a hypnotic drowsy state, i.e., with the tone of the cerebral cortex lowered. After each session, the patient was given one hour of suggested rest in hypnotic sleep.

All this led to a balancing of the basic cortical process and to the removal of the described pathological conditioned reflex. The patient was under our observation for two years and had no relapses. He was demonstrated at the conference of psychotherapists.

3. Patient D., 38 years old, motor-man, complained of palpitation, irritability and especially of the fact that he "could not stand the sight of children hanging on to a tram-car." In his own words, his "heart sank" and he immediately "broke out in a sweat," his "legs gave way" and he "could not work." He fell ill a year previously, after his tram-car had run down a boy.

Several months' treatments for "cardiac neurosis" in a polyclinic and a sanatorium had brought no relief. Psychotherapy was administered and the patient was given 3 sessions of corresponding verbal suggestion during suggested sleep as a result of which the entire pathological syndrome was removed. The patient was subsequently under observation for a period of a year and showed no relapses.

This patient had also formed a temporary pathological bond with a definite situation; the bond emerged as a result of a sharp affective strain experienced once and created in the cerebral cortex a very strong focus of excitation with a negative induction in the other sections of the cortex which, in turn, brought about a positive induction of the subcortex with its vegetative centres.

Thus, the foregoing examples show the way temporary pathological conditioned bonds are formed and the mechanism for removing these bonds by means of verbal influence.

Describing the physiological mechanisms underlying the effectuation of verbal suggestion made during suggested sleep and the phenomena of rapport, Pavlov explains that in these cases the cerebral hemispheres are not inhibited throughout and excited points may form in them. It is from this excited point (which serves as the rapport point.—*The author*) that "you act upon the patient and suggest to him. Later the hypnotized subject cannot help carrying out your command . . . ." Under these conditions "the influence of the remaining parts of the hemispheres on what you impart in your words and in your stimulations *is completely severed from all the rest.*" Owing to this, "when man resumes his waking state after this suggestion *he cannot do anything about this isolated stimulation because it is separated from all the rest.*"[1] (Emphasis by the author.)

Verbal suggestions, as we already know, are most easily and effectively realized precisely in hypnotic sleep with its phase of suggestion and its wakeful rapport zone. The induction relations in the cerebral cortex are extraordinarily favourable to a reinforcement of the coupling activity in the rapport zone. According to I. Pavlov (1927), it is by virtue of this that ". . . all that contradicts reality can be suggested to the subject"[2] and reactions clearly opposed to the real stimulations may be provoked in the subject. This testifies to the considerable force of verbal influence which may affect many processes in the organism including the functional state of the cerebral cortex.

All this was confirmed in its time by physiological research. Thus, in studying the activity of the brain of children and adolescents, N. Krasnogorsky (1939) found that in the cerebral cortex which is in a state of hypnotic inhibition "extremely strong and stable reflexes may form in its wakeful zones." He is referring to S. Levin's clinical investigations which showed that the suggestion of eating an apple made to a child during suggested sleep provokes double the salivation produced by the same suggestion made to the child in the waking state.

According to Y. Povorinsky (1953) the word "bell" spoken by the hypnotist yields a greater conditioned reflex reaction than the bell in response to which the reflex was elaborated in the waking state. These peculiarities are retained even against the background of the deepest sleep inhibition.

In conclusion, we must consider why the suggestion may be effectuated only in one way—by means of verbal influence exerted by the hypnotist on the subject. The suggestion must always take the form of a command or an instruction as to what is happening at the given moment or will happen at some later time. For example: "You are experiencing joy," or "You are holding a flower in your hand," or "One hour after awakening you will do so and so," etc.

This is apparently conditioned by the fact that processes of generalization and abstraction are inherent only in the second signal system, these

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 484.

[2] I. Pavlov, *Lectures on the Work of the Cerebral Hemispheres,* 1927, p. 358.

processes obviously underlying the formation of corresponding new cortical dynamic structures which are the reflection of the content of verbal influence in the cerebral cortex. It follows that only a verbal form of influence is able to create these new generalized dynamic structures in the cerebral cortex. Such dynamic structures appear to be connected with corresponding analysers in the cortex and with subcortical centres.

The second question that naturally arises is: why is a suggestion *effectuated,* i.e., why is it embodied in the form of a definite and integral motor or receptor act?

A process of reviving the traces of analogous activities in the past apparently takes place in the cerebral cortex. The suggested state or action in the form of a corresponding receptor activity, motor act or emotional state is effectuated only when the revival of these traces reaches a definite intensity. Suggested dreams are apparently effectuated the same way.

Effectuation of a suggested thought or execution of a command of a hypnotist (to answer a question put by him, etc.) is apparently also brought about by a revival of the traces of the former second signal activity. The subject usually gives sufficiently correct answers to the questions put to him. The latter circumstance frequently misleads the investigator making him think that he is dealing with *conscious answers,* whereas being of a complex conditioned reflex nature the answers are really made without the participation of the subject's consciousness. This is proved by the complete amnesia of the questions and the answers given to them (provided there has been no special suggestion that they be remembered after awakening). Since the subject's cerebral cortex is in a state of a more or less deep division into waking and sleeping sections, its responsive activity may be effected only insofar as processes of revival of former bonds and of formation of new bonds and new dynamic structures on their basis are possible.

Incidentally, by means of corresponding verbal suggestions, the hypnotist may disinhibit at his will considerable regions of the cerebral cortex and thus extend the possibilities of the subject's cortical activity.

CHAPTER VI

ANALYSING FUNCTION

> Finest analysis is the basic function of the higher division of the nervous system.
>
> *I. Pavlov*

First of all it is important to ascertain the character of the activity of the analysers in the state of suggested sleep without any special suggestions. The studies conducted by Braid (1845), Liébeault (1862) and Delken showed that during suggested sleep the activity of the receptor organs was somewhat dulled and the deeper this sleep, the weaker the receptor activity and the ability to perceive.[1] From the point of view of "real physiology" of the cerebral cortex this is exactly as it should be if we regard suggested sleep as an inhibited state of a number of sections of the cerebral cortex.

Y. Katkov (1941) made a detailed investigation of the *cutaneous* analyser by using electrocutaneous stimulations; he found that as suggested sleep grew deeper, cutaneous pain sensitivity diminished. The initial signs of hypalgesia are observed already in the state of pronounced drowsiness (the first stage of suggested sleep). Phenomena of analgesia come clearly to the fore during the second stage, of which they are particularly characteristic. At the same time, if cutaneous analgesia has appeared, it can easily be strengthened by corresponding verbal suggestion. The presence of cutaneous analgesia, arising during deep suggested sleep, was also confirmed by A. Kartamyshev's experimental studies (1942).

Investigation of the influence of verbal suggestion on the functional state of the analysers is particularly important in connection with using suggestion as a pain-soothing factor. However, the very possibility of soothing pain by verbal influence requires objective proof because analgesia in these cases is still doubted by many authors. Thus, from the point of view of subjectivist psychologists disturbances in the sphere of sensation produced by verbal suggestion are of an "imaginary" character (Löwenfeld, 1913, and Kronfeld, 1927).

This can, of course, be demonstrated only by physiological experiment which indubitably confirms real pain relief or, on the contrary, establishes

[1] Quoted from A. Moll (1912).

simulation of this state. Numerous clinical observations show that such influence may take place, though very little research has been done in this respect as yet.

In Russian literature the basis for it was laid by the work of V. Bekhterev and V. Narbut (1902), in which the reactions of the pulse and respiration served as an objective sign of suggested analgesia, anaesthesia and hyperaesthesia. Ten persons were observed; the same tension of the Farradic current from the Dubois-Reymond's key and the punctures made by a pin were the stimuli used in all the investigations. While analgesia was suggested both in the waking state and during suggested sleep the reactions of the pulse and respiration to the applied stimulations were in most cases entirely absent; in the minority of cases these reactions were very weak. This was observed when hard punctures were made and high-tension Farradic current was used. During suggestion of hyperalgesia, the pulse curve underwent a sharp change—the amplitude increased or the curve, on the contrary, scarcely rose.

We are printing one of the sphygmograms with a clearly pronounced pulse reaction to a stimulation by a puncture in the waking state and with an almost complete absence of reaction to the same stimulation during suggested sleep with suggested analgesia (Fig. 30).

We are referring to data concerning two healthy people. Pin-pricks and Farradic current whose tension was determined by the distance between the coils of Dubois-Reymond's key (with a 1-volt storage battery in the primary circuit) were used as stimuli. The state of the subject's respiration served as a criterion of pain perceptions.

The data obtained by us showed an absence of reaction in suggested analgesia to the puncture (Figs. 31 and 32) and to the Farradic current of maximum tension, which the subject could not endure at all in his waking state with normal sensitivity of the skin (Fig. 33). It will be noted that during the investigation the Farradic current was constantly boosted (by gradually reducing the distance between the coils). The subjects could hardly endure electrical stimulations of considerable force in the waking state.

It will be observed that along with the absence of a respiratory reaction the subjects also showed no external manifestations of emotional reaction (Figs. 34 and 35). At the same time, in studying our subjects in the waking state we were also guided by their verbal account (see studies of suggested analgesia cited at the end of Chapter I where the state of the pulse shown in Fig. 3 served as an index of the absence of pain; the same curves show the pulse reactions to the suggested sensation of pain from an imaginary puncture).

V. Zdravomyslov (1938) and Y. Shraiber (1948) obtained similar results in studying the problem of the relations between cortical and subcortical reactions.

The studies conducted by Y. Povorinsky (1949) who used the method of plethysmography and the cutaneous-galvanic reflex and established the reality of suggested cutaneous anaesthesias and hyperaesthesias are instructive. According to his data, the insignificant electrocutaneous stimulations which had formerly given no vascular or cutaneous-galvanic reactions, after suggestion of higher sensitivity to them began to evoke

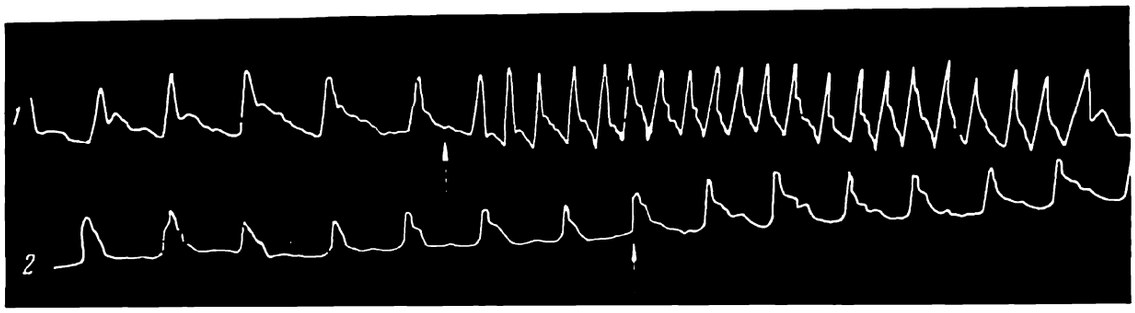

Fig. 30. Pulse changes under pain stimulation.

1—pin-prick in the waking state; 2—pin-prick during suggested sleep after verbal suggestion: "Pin-prick is painless" (after V. Bekhterev and V. Narbut, 1902).

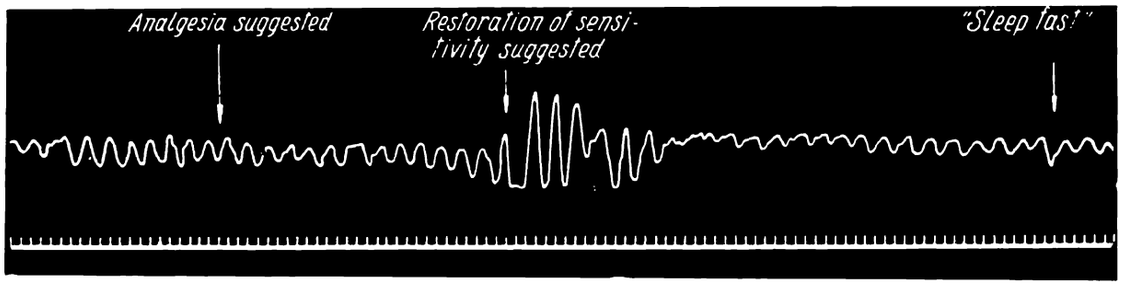

Fig. 31. Respiratory reaction to pain stimulations after different verbal suggestions during suggested sleep. Arrows indicate pin-pricks.

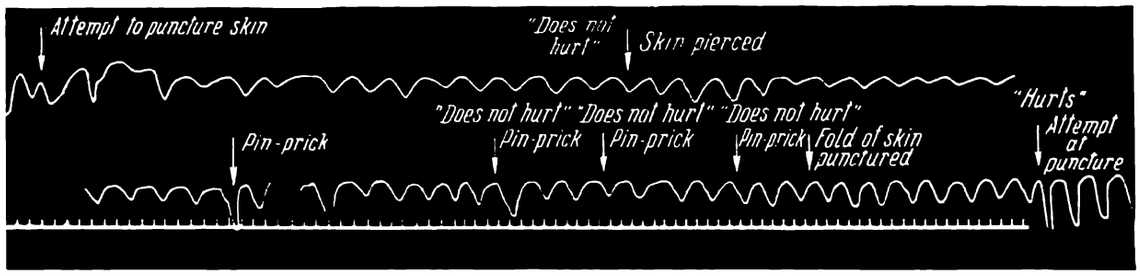

Fig. 32. Respiratory reaction to a pin-prick in the waking state before and after verbal suggestion: "Does not hurt."

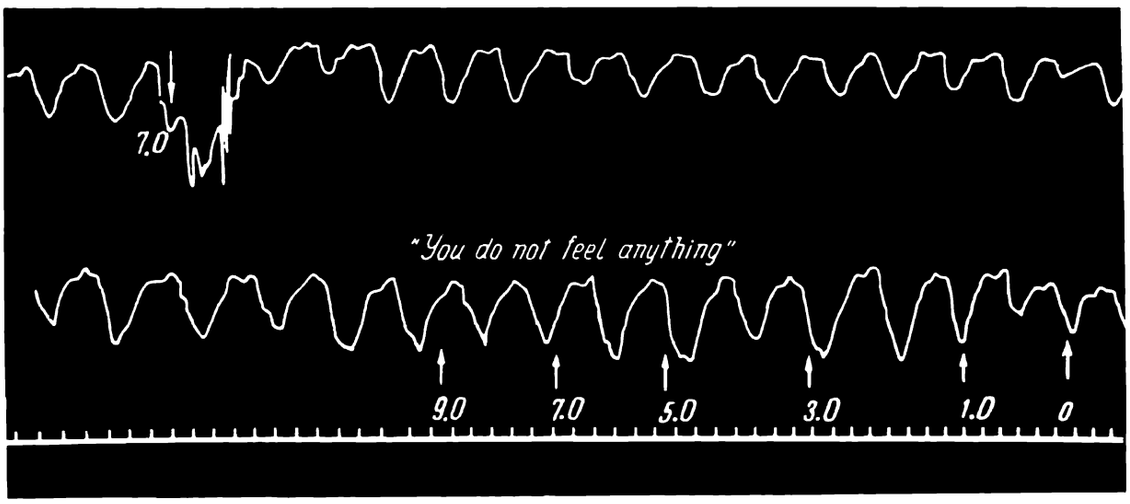

Fig. 33. Respiratory reaction to pain stimulations during suggested sleep. After the verbal suggestion: "You do not feel anything," the stimulation evoked no respiratory reaction. Arrows indicate stimulation by Farradic current, figures—distance of the inductor coils in cm.

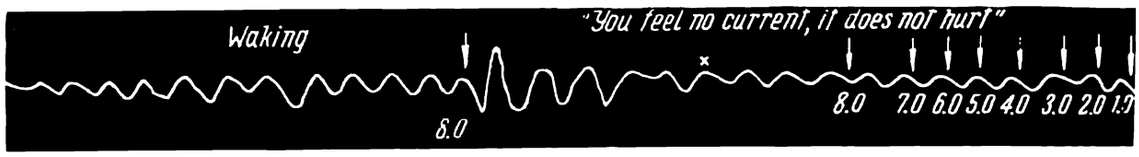

Fig. 34. Respiratory reaction to pain stimulation in the waking state and after suggestion of analgesia. Arrows indicate stimulation by Farradic current, figures—distance of inductor coils in cm.

Fig. 35. Respiratory reaction under verbal suggestion of action of non-existing stimulation. Suggestion: "You feel a strong current" causes a change in respiration and a mimic and speech reaction of the subject: "It hurts, it hurts me!"

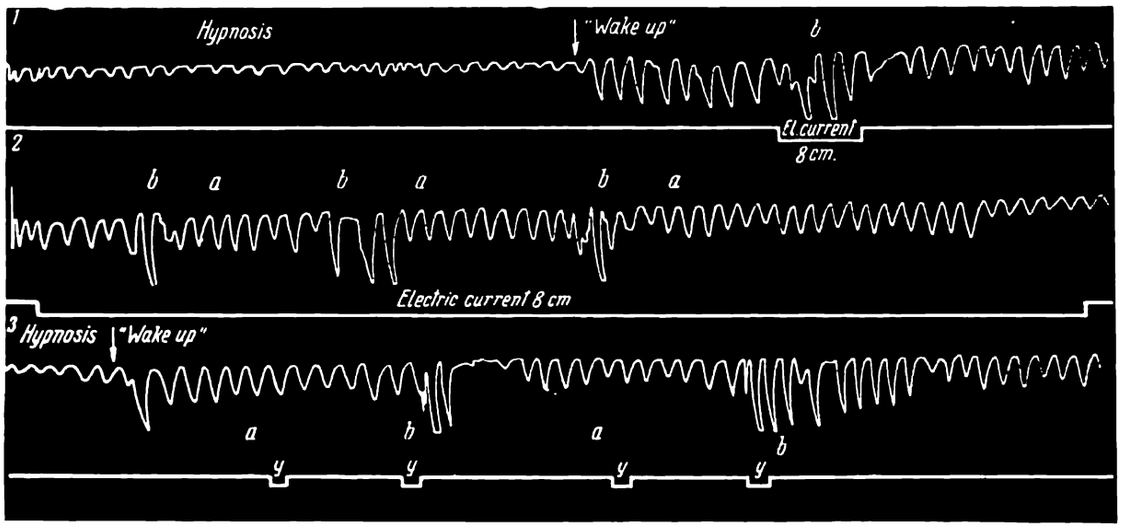

Fig. 36. Respiratory reaction to electric current and sound the sensation of which is made dependent on another stimulus by verbal suggestion.

1 and *2*—suggestion made under hypnosis: "In the presence of Dr. Z. you do not feel any electric current, but in his absence you do"; *3*—suggested under hypnosis: "In D.'s presence you cannot hear."

a—presence of outsider; *b*—his absence; *y*—striking hammer against sheet of iron. Figures show distance of inductor coils.

sharply pronounced reactions. Contrariwise, the pain (electrocutaneous) stimulations which usually provoked a sharp reaction after verbal suggestion of the absence of sensitivity to them produced no reaction at all.

The possibility of alleviating a real pain sensation by verbal suggestion and of suggesting in this manner a "sensation of pain" without the corresponding physical stimulation was thus confirmed. However, as observations have shown, vegetative reactions were by far not always absent in suggested analgesia. The presence of these reactions apparently indicated that the sleep inhibition had not reached the closest subcortex.

We shall now dwell on the observation long known from everyday life that the appearance of a physician alone (or the approach of the patient to the physician's office) soothes the pain and sometimes even completely

relieves it in many patients. Thus, we happened to observe that pregnant women prepared for painless parturition by corresponding verbal suggestion during suggested sleep usually felt no pain in the presence of the physician who had prepared them. In individual cases, when the physician went into the adjacent room, the pain sensations immediately recurred which could be judged by the sharply altered behaviour of the parturient (R. Shlifer, Z. Kopil-Levina and I. Tsvetkov, and our own observations).

To find objective proof of this influence, we conducted a special investigation in 1928 proceeding from the consideration that the conditioned pain reaction developed in the patients not only in response to the physician's words, but also to his appearance, movements, etc.

The subject was given verbal instruction during suggested sleep: "In the presence of Dr. Z. you do not feel the electric current, but in his absence you do." After awakening, the subject was given a test in the absence of Dr. Z., the coils of the Dubois-Reymond's key spaced 8 cm.; there was a clear reaction to the immediate make (Fig. 36). When the Farradic current was turned on in the presence of Dr. Z. it evoked no respiratory reaction, as can be seen from the curve. There was no reaction as long as Dr. Z. was present, but as soon as he went to the adjacent room for a few seconds a respiratory, as well as a general, reaction with an exclamation: "It hurts!" immediately appeared. The investigation was repeated 3 times with the same constant effect. The same investigation was conducted later, this time with a formation of a negative reaction to a sound stimulus: it was suggested to the subject that she did not hear the sound of a hammer striking an iron sheet in the presence of laboratory technician D. but did hear it in his absence (lower curve). The curves show that the suggestion was fully effectuated.

The data of our studies can serve as proof of the changes really arising in the activity of the analyser as a result of corresponding verbal suggestions.

What are the mechanisms that change the reaction of the subject to pain stimulations running to the cerebral cortex both from the periphery and from the internal organs?

We find the answer to this question in the studies of A. Pshonik (1952), from K. Bykov's laboratory, in which the vascular reactions (plethysmograms) served as an objective criterion, while verbal suggestions and various stimuli of the first signal system were used as conditioned stimuli. The studies have shown that the final formation of pain sensations occurs not in the thalamus as was formerly believed, but in the cerebral cortex.

These studies have also shown that the role of the cerebral cortex in the formation of pain perceptions is not confined to the formation of temporary bonds and an analysis of the impulses coming from the periphery. The cerebral cortex, as K. Bykov emphasizes (1947), "organizes, as it were, the periphery" directing it at, and tuning it up for, certain levels of activity and even "frequently forcing its laws on the periphery." Bykov believes that "in addition to the ability to transform a subpain sensation into a pain sensation, the cortex also has the capacity to depress and eliminate pain by turning pain sensations into subpain sensations." All this pertains not only to pain stimulations but also to other forms of

cutaneous stimulations. According to A. Pshonik, the latter is demonstrated by the transformation of unconditioned pain impulses into painless impulses (and vice versa) by means of a conditioned stimulus, the domination of conditioned stimuli over unconditioned stimuli and the physiological action of a verbal stimulus with the periphery denervated. The aforesaid facts reveal the essence of "psychogenic pains" and the psychogenic factor of many frequently encountered ailments. We thus see that the "therapeutic role of the cortex in soothing pain is enormous" (K. Bykov, 1947).

Similar data on pain sensitivity were obtained by R. Felberbaum (1950) in K. Bykov's laboratory, showing the possibility of elaborating a conditioned vascular reflex to a pain stimulus and of changing the given vascular reflex (and the intensity of pain sensation) in altering the functional state of the cerebral cortex under the action of bromides or phenamine, in the break-up of the dynamic pattern it possessed, etc.

These facts scientifically substantiate the methods of relieving pain by means of verbal suggestion used in recent years not only in small, but also in big surgical operations. The first surgical operations done with only a verbal suggestion of painlessness were performed in our country on the initiative (and with the personal participation) of P. Podyapolsky (1916) and later with our participation (1924) and with that of I. Velvovsky (1924). At the same time, this substantiates the possibility of rendering painless not only normal parturition, but also pathological parturition and postnatal surgical interference by verbal suggestion in hypnotic sleep; experience shows that complete painlessness is attained in these cases.

It should be observed that the removal of pain sensations by suggestion is possible not only in surgical interference or parturition. According to our observations, pain sensations can be relieved in various somatic afflictions of a psychogenic character, especially in cases when a hypnotic state is easily and rapidly induced. Thus we successfully terminated painful gastric crises in a patient with tabes dorsalis, relieved the pain in cancer patients, etc.

N. Tatarenko (1952) advanced a conception of a cortical substratum of phantom pains in patients with amputations, which is confirmed by the successful removal of these pains in treatment with sleep induced by drugs (S. Kaminsky and N. Shevchenko, 1949) and by verbal suggestion in hypnotic sleep conducted by P. Podyapolsky (1916), K. Platonov (1925), V. Kislov (1929) and S. Shvartsman (1946). In the light of A. Pshonik's studies this conception is also scientifically substantiated.

To illustrate this we shall cite one of our observations (1925).

Patient R., 62 years old, had her right arm amputated five months previously (because of a malignant tumour which had caused her severe pain). However, the patient retained a sensation of the amputated limb and felt the same tormenting pain, narcotics producing no effect. The patient suffered from pain and insomnia. Hypnosuggestive therapy (12 sessions) administered by our collaborator R. Shlifer relieved the pains and at the same time removed the sleep disturbances.

The foregoing data show that the activity of the *sound* analyser outside the rapport zone is inhibited during suggested sleep, responding to the first signal sound stimulations much weaker than in the waking state and during lighter suggested sleep, and not reacting to them at all during deep suggested sleep (see Figs. 8 and 9).

A verbal suggestion of corresponding content may also completely terminate perception of sound stimulations. Thus, the studies conducted by V. Sreznevsky (1917) showed that in suggested deafness a pistol fired near the very ear of the subject provoked no respiratory reaction on his part, whereas without the suggestion the reaction was very violent.

In our investigations concerning the depression of the activity of the sound analyser by verbal influence, we took into consideration the reactions on the part of respiration and blood pressure. Fig. 37 shows that loud handclapping near the very ear of the sleeper provoked a respiratory reaction but did not awaken him (upper curve). After a corresponding suggestion: "You do not hear," this reaction did not appear in response to the same handclaps following each other (middle curve). The same stimulus provoked a rather violent reaction in the waking state (lower curve). The picture of the effectuation of an imperative verbal suggestion of deafness made to the subject in the waking state with a hammer striking an iron sheet serving as the stimulus is shown in Fig. 38.

A number of studies were made by the method of conditioned reflexes. A stable respiratory conditioned reflex to the sound of a bell was elaborated in the laboratory of physiology of the higher nervous activity in the Kharkov Pedagogical Institute (headed by Y. Katkov) by combining the action of a bell and electric current only once. As the curve shows, this reflex disappeared (Fig. 39) after the suggestion of deafness (in the waking state) (the studies were conducted by us in 1929).

In similar studies carried out by A. Tsinkin jointly with K. Platonov in 1929, the pulse and arterial pressure were also recorded.

In the waking state subject D. had an arterial pressure of 123 to 125 and a pulse of 68; in hypnotic sleep his arterial pressure was 116 to 115 and pulse 60. Striking all piano keys at random for a minute during suggested sleep raised his arterial pressure to 126 and the pulse to 70. After a suggestion made in the same state: "You do not hear," the same disorderly musical noise provoked no pulse or pressure reaction. Finally, the same sound stimulus produced the same reaction after a verbal suggestion to the effect that hearing was completely restored: the arterial pressure rose from 116 to 127 and the pulse from 60 to 80 (Fig. 40). Similar results were obtained in the same patient in the waking state.

Using the conditioned reflex method, I. Nevsky and S. Levin (1932, N. Krasnogorsky's laboratory) recorded the effects of the suggestion of deafness in hypnotic sleep: after the suggestion made to the subject that he did not hear anything, the conditioned reflex to the sound of a bell did not appear. The real possibility of experimentally reproducing suggested deafness was thus demonstrated. It will be observed that this method of investigation was proposed by V. Bekhterev (1912) for revealing simulation of deafness with the reality of suggestive deafness checked by plethysmographic methods and the cutaneous-galvanic reflex.

According to the data of F. Maiorov, I. Korotkin and M. Suslova (1951), the verbal suggestion of deafness made in the somnambulistic phase of

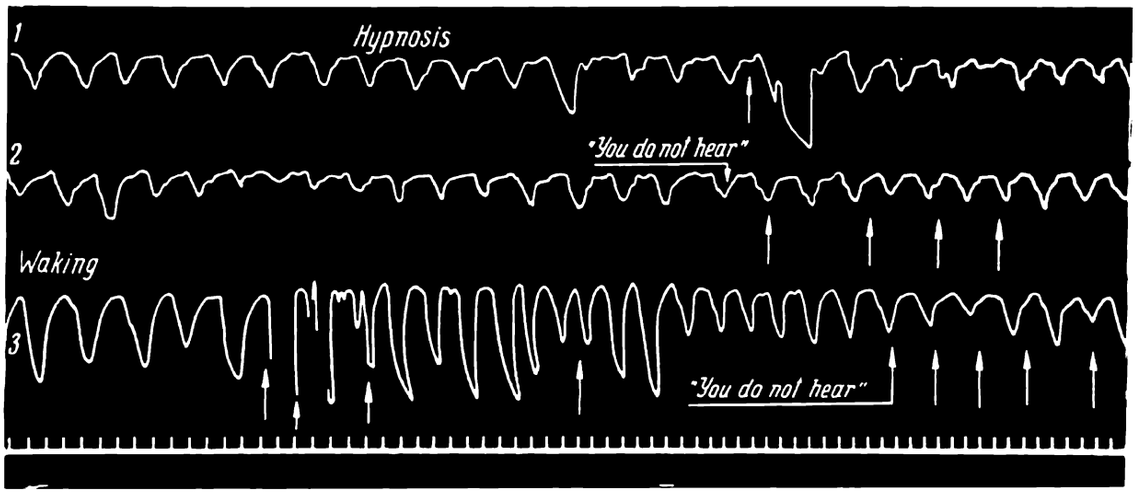

Fig. 37. Respiratory reaction to acoustic stimulus before and after verbal suggestion: "You do not hear."

1 and *2*—under hypnosis; *3*—in the waking state. Arrows indicate handclapping.

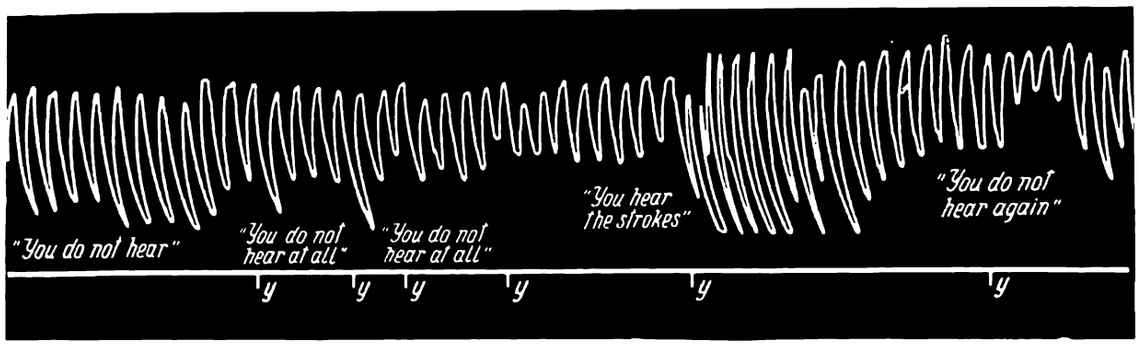

Fig. 38. Respiratory reaction to acoustic stimulus in the waking state after verbal suggestion: "You do not hear" and "You hear the stroke," *y*—hammer striking against sheet of iron.

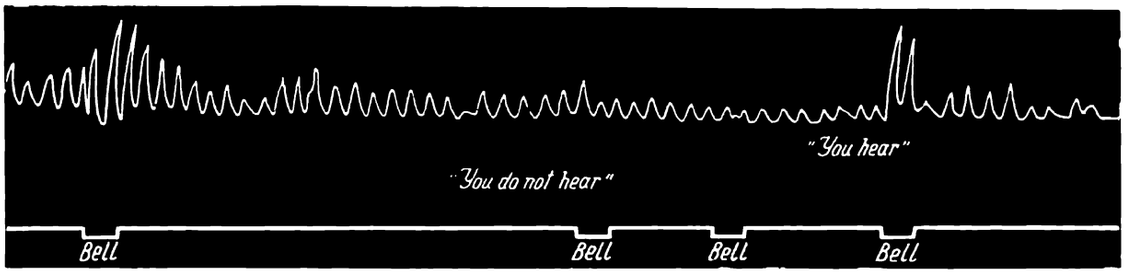

Fig. 39. Influence of verbal suggestion: "You do not hear" and "You hear" on conditioned respiratory reflex elaborated to sound.

suggested sleep led to the disappearance of the conditioned reflexes elaborated to a sound stimulus, and to a diminution of the unconditioned

(blinking) reflexes which indicated a complete inhibition of the bond with the sound analyser.

The aforesaid data indicate that suggested deafness cannot be considered "imaginary" as was maintained by Löwenfeld and some other authors. Verbal suggestion results in a real suppression of the functions of the corresponding divisions not only of the cerebral cortex, but also of the subcortical region, because there is no reaction either on the part of the pulse or arterial pressure. Thus, an analogue of the syndrome of psychogenic hysterical deafness is in a certain measure reproduced experimentally.

The following is an example from our dispensary practice interesting not only for the effect of the suggested influence, but also for its method.

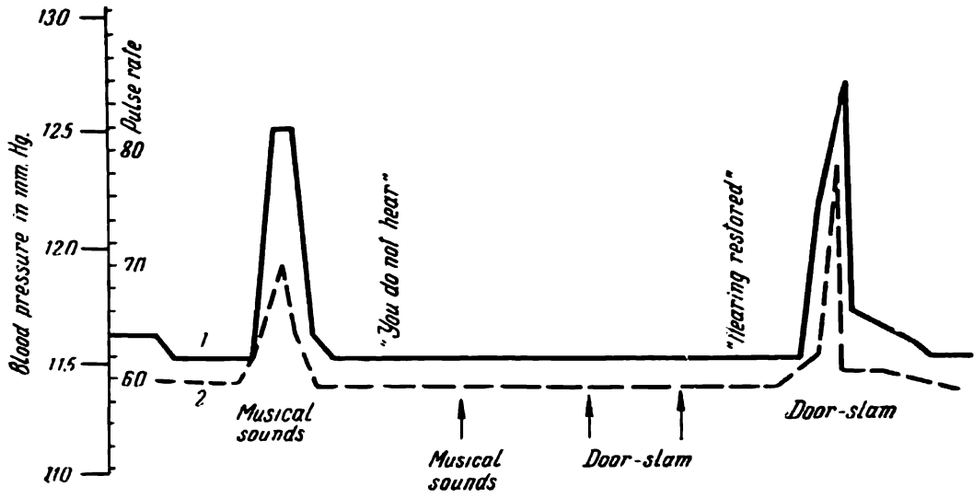

Fig. 40. Reaction of blood pressure (*1*) and pulse (*2*) to acoustic stimuli during suggested sleep after verbal suggestion: "You do not hear" and "Hearing restored."

Patient Z., 21 years old, cashier, complained of sudden deafness on both ears developed 5 days previously. According to her husband, the loss of hearing was connected with a conflict caused by the failure of a customer to pay her a small sum of money; towards evening the patient noticed there was something wrong with her hearing and developed complete bilateral deafness. Four days later she felt relieved without any palpable reason: she began to make out soft speech, but could not perceive loud speech (according to her husband). Complete bilateral deafness, however, soon recurred. She had never experienced anything like that before, had never had any ear trouble, and had always enjoyed good hearing. By nature the patient is oversensitive, unsociable, always afraid of conflicts which she tries to avoid. She apparently belongs to the weak general type of nervous activity and to the artistic particular type.

To reassure the patient, we wrote on a sheet of paper and asked her to read the following: "The ailment is not dangerous, and you will soon fully regain your hearing. All we have to do is to stroke your forehead which will put you to sleep." During this stroking the patient gradually fell asleep and her respiration became even. Following this, she was administered light punctures with a pin in the region of one of her ear helixes, i.e., an attempt was made thus to disinhibit the auditory zone of the cortex.

A suggestion was made simultaneously first in whispers, then in a low voice with a gradual transition to a voice of medium force. First of all it was suggested: "The conflict is forgotten; you have been reassured; the failure of your customer to pay has caused you no trouble; when you wake up you will hear everything again." Then it was suggested: "You have no ear disease which may impair your hearing." At the same time the subject was instructed by way of prophylaxis against possible psychological injuries in the future. She woke up with completely restored hearing. She was under our observation for two years, and no relapses occurred (observation by Z. Kopil-Levina).

It will be observed that the certain improvement in hearing may have been conditioned by the independently appearing paradoxical phase, because the patient could hear only quiet speech.

During consultations given by us in military hospitals we succeeded in eliminating post-shell-shock deaf-mutism by indirect suggestion to patients in the waking state. We prescribed an indifferent mixture for the patient and suggested to him in an imperative manner: "Each spoon of this mixture helps in restoring hearing and speech. By the end of the 4th day of treatment you shall be completely well." The medical personnel was instructed correspondingly to support the suggestion made. Of the 6 patients this produced a complete positive effect in five.

Verbal influence may also affect the activity of the *vestibular* apparatus. The studies made by us jointly with the otiatrist Y. Galperin show that theoretically and practically important data can also be obtained in this sphere.[1]

The following are some of these studies.

1. In the waking state subject S. was administered a washing of the auditory passage of the left ear with 500 ml. of water at 14°C. in response to which she could hardly withhold general defensive movements and a clearly pronounced vegetative reaction: she turned pale, displayed general weakness, an increase in the pulse rate, nausea, a desire to vomit, and disturbance of statics. After the manipulation she felt so bad that she had to be put to bed. By the suggestion: "It is all over, you feel good again" made during suggested sleep which lasted one minute the entire complex of symptoms was removed. Upon awakening S. began to feel as good again as she did before the study.

Several minutes later she was put to sleep again; a sensation of numbness of the outer, inner and middle left ear was suggested to her during suggested sleep: "Your left ear has turned completely numb both outside and inside, and you don't feel anything." While the left ear was being syringed with the same portion of water at the same temperature during suggested sleep subject S. remained entirely motionless, sleeping quietly and showing no vegetative reaction. The same effect was obtained in studies in the waking state after a similar verbal suggestion had been preliminarily made during suggested sleep. After awakening subject S. lost her hearing of the left ear, which occurred without any special verbal instruction as regards the hearing. The hearing was restored by a corre-

[1] The studies were made at the Ukrainian Psychoneurological Institute in 1928.

sponding single suggestion. This served as additional proof of the cortical origin of the vestibular syndrome.

A similar result was obtained with two other persons (study made jointly with the otiatrist O. Markon and the physiologist M. Linetsky).

The following is a brief account of one of these studies.

2. Subject C., 62 years old. A caloric test was made on the left ear: a) syringing the left ear with water heated to body temperature provoked no reactions; b) a cold caloric test conducted in the waking state provoked a clear affective reaction, a nystagmus to the right, a miss to the left, the face turned pale, the patient experienced vertigo and nausea.

After putting the subject into a state of suggested sleep, the following suggestion was made: "Upon awakening, your left ear—external, middle and internal—will lose sensitivity." A similar cold caloric test made upon awakening provoked no affective reaction, nor was there any nystagmus or miss. The subject showed deafness in the left ear and analgesia around the left helix. Hearing was restored by means of opposite verbal instruction. A repeated study yielded the same results. The investigations conducted by M. Medvedovsky and I. Nevsky (1940) are instructive: in the waking state (and sometimes in the state of suggested sleep) it was suggested to the subjects in some cases that the room in which they were was spinning, and in other cases that the armchair in which the subject was sitting was spinning. In both cases the subjects showed a cortical and a cerebellar nystagmus which indicates the presence of a functional bond between the vestibular apparatus and the cerebral cortex.

The data obtained by Bauer and Schilder (1927) are analogous; the following verbal suggestion was made to the subject during suggested sleep: "In the spinning armchair in which you are sitting your body is turning on its own axis"; the subject was told the direction in which she was spinning. In response to this the subject's index finger deviated as it would after really spinning in that direction.[1]

It is very important to focus the attention on the possibility of the appearance of stable psychogenic reactions on the part of the vestibular analyser, which is frequently underestimated by otiatrists and neuropathologists. The positive results of psychotherapy (in a number of cases) in a severe and protracted form of Menière's disease which for a long period of time fully or partly incapacitated the patients, may serve as a vivid illustration.

1. Patient L., 42 years old, complained of severe daily dizziness accompanied by vomiting and sharp hyperhydrosis, and a loud noise in the ears. He could not look at moving objects, could not hear anything with his right ear, was very much depressed and was in constant fear of attacks. The patient had been sick for over 18 months and was growing increasingly incapacitated.

After the third session of verbal suggestion (in a suggested drowsy state) his condition sharply improved, after the 6th session the patient began to work and after the 10th session the noise in the ears disappeared and the

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[1] We have borrowed these data from N. Timofeyev's article in the journal *Neuropathology and Psychiatry*, Russ. ed., 1936, No. 11.

patient regained his hearing in the right ear. There was a total of 20 sessions which fully restored the efficiency and completely eliminated the fear of attacks. Positive catamnesis for a period of 10 years; the patient does full-time work. A series of light attacks appearing in connection with influenzal intoxication and after overstrain did not reduce the general level of efficiency (observation by Y. Katkov).

2. Patient B., 54 years old, Menière's disease of 25 years' standing, sharply aggravated and grown more frequent in the last 3 years. Attacks of vertigo with vomiting and sweating frequently occur in series, one after another; in these cases the patient must stay in bed. Complains of tormenting noise in the left ear, especially in quiet surroundings. Has no hearing in the left ear since 1925. Since 1950 after a severe attack in the street (during which the patient was nearly run down by a tram-car), he has feared walking alone. Efficiency reduced; the patient is very much afraid treatments are hopeless. Anamnesis contains a number of psychical injuries and trying experiences.

Systematic sessions of verbal suggestion in suggested drowsiness sharply improved the general condition of the patient and eliminated the fear of attacks. After 30 sessions the attacks ceased, the noise in the ear grew much weaker and the hearing in the left ear was restored, though otiatrists had believed it lost. At present the patient is doing full-time work, is using all means of conveyance which had actually been impossible for him for a period of years (observation by Y. Katkov).

It should be emphasized that neuropathologists and otiatrists diagnosed both these cases as vasopathy connected with atherosclerosis.

3. This is an acute, psychogenically developed severe case of Menière's disease in a 42-year-old woman who applied to us for treatment. Neuropathologists diagnosed this case as "encephalitis." The patient is forced to lie motionlessly because a turn of the head to the right causes vertigo and acute nausea; an attempt to sit up provokes vertigo, nausea, vomiting and general weakness. On the 3rd day after the psychic trauma we used verbal suggestion during suggested sleep, the sessions of which were subsequently conducted daily for a period of 5 days. After the very first session the patient could sit up quietly, after the second session she could get up and walk cautiously, and after the subsequent three sessions her general well-being was gradually restored. Observation was continued over a period of 3 years; there were no relapses.

Verbal suggestion makes it possible to fight seasickness both during seafaring and in other similar cases, for example, in travelling by bus, in flying by plane, etc.

To produce objective proof of changes in the *activity of the visual analyser* under the influence of some suggestion, we also used the method of conditioned reflexes.

Subject S. developed a respiratory conditioned reflex to light. This reflex, like the one elaborated in response to sound, was formed rapidly and firmly: a respiratory reaction to a flash of light appeared already after one combination of a flash of light from an electric bulb with electric current. When the reflex had grown sufficiently strong, a verbal suggestion was made: "You have lost your vision, you do not see"; after this the reaction to light stimulation ceased (Fig. 41). Thus, in this case, as in the

cases with auditory stimulations, the method of conditioned reflexes offers objective proof of changes in the state of the visual analyser.

The data of a number of similar studies indicate a real possibility for the emergence of functional deafness and blindness which clinicians, not infrequently, take for organic. We have repeatedly observed a reactive amaurosis lasting for years, which ophthalmologists diagnosed as retrobulbar neuritis. The patients were, therefore, not administered the necessary pathogenetic therapy for a period of years to remove the psychic injury which had produced the amaurotic reaction; administration of some form of psychotherapy or other usually very quickly (often in one or two sessions) fully restored normal vision.

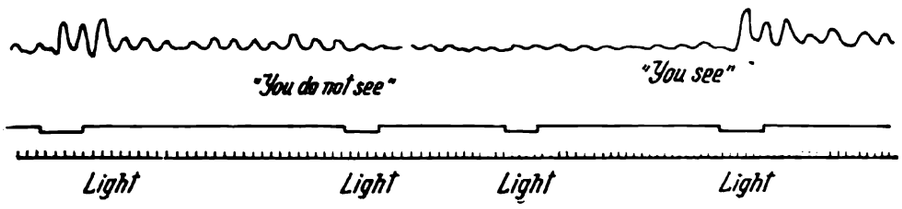

Fig. 41. Influence of verbal suggestion: "You do not see" and "You see" on conditioned respiratory reflex elaborated to light.

1. Patient B. had suffered for 4 years from a left-sided amaurosis diagnosed by an ophthalmological clinic as a symptom of retrobulbar neuritis. The presence of a psychic trauma established by us made it possible to remove this amaurosis by means of a single session of hypnosuggestive therapy; the stability of the effect produced was subsequently traced over a period of 4 years of observation.

2. Here is another case of a deep and stable disturbance of vision. The patient with a diagnosis of "retrobulbar neuritis" was referred to the Ukrainian Psychoneurological Institute by an ophthalmological clinic. On the basis of anamnestic data one of our associates (R. Shlifer) discovered a psychical injury which had caused the disturbance of vision that could not be cured by the usual treatments for a period of 8 years (visual acuity 0.1). The psychotherapy administered by us (daily verbal suggestions made in a drowsy state) improved the acuity of vision by 0.1-0.2 every day. One week after the beginning of the treatments the patient was discharged and went home with an 0.9 acuity of vision which she retained for a period of the subsequent 8 years of observation.

We shall now discuss the possibility of influencing *colour vision,* i.e., the perception of colour and colour differentiation by suggestion (and, thus, by autosuggestion). This is of considerable practical importance for work in industry or on the transport connected with colour signals.

There is no complete agreement on the problem of the possibility of *psychogenic* disturbance of colour sensation. Literature contains contradictory judgements with some authors recognizing this possibility and others denying it.

A hypnosuggestive experiment may bring certain clarity into this problem. Thus, as early as 1911-1913, N. Wedensky indicated in his lectures the possibility of producing phenomena of colour blindness by suggestion

in hypnotic sleep. He observed that under the influence of corresponding suggestion the subjects ceased to distinguish the red and green parts of the spectrum and when asked what colour the pieces of red and green cloth given to them were, they answered that they were yellowish. Thus, says Wedensky, "the phenomenon known as daltonism was produced artificially." However, there was no objective proof of suggested achromatopsia.

Studies with the aid of the polychromatic tables of Ishihara or Rabkin (with hidden figures of different colours) may serve as the best proof. The use of these tables not only makes it possible to distinguish people with disturbances of colour vision from normal "trichromates," but also to establish simulation and dissimulation.

The investigations of our associate M. Truten conducted in 1941 jointly with the ophthalmologist F. Marmorstein by means of these tables on 42 subjects showed the possibility of producing partial achromatopsia (to red and green colours) by suggestion during suggested sleep.

The results of these investigations (conducted with both Ishihara's and Rabkin's tables) are 80.4 per cent identical. The following is an example of one of the observations.

Patient B., 42 years old, is a normal trichromate. Before hypnotic suggestion she read well the hidden red figures in a number of tables. After corresponding suggestion made during suggested sleep she was unable to read any of the "red" figures on Ishihara's tables 1, 2, 3, 6, 7, 12 and 13 and not a single hidden "red" figure on Rabkin's tables.

These data conform to the observations made by Erikson (1939) concerning 6 subjects to whom blindness was suggested for red, green and red + green colours.

This once again confirms the thesis of the Pavlovian school on the presence of a colour analyser in the cerebral cortex.

We shall confine ourselves to the cited data and examples pointing at the possibility of psychogenesis of certain disturbances in vision which requires a corresponding therapeutic approach. The same should be said of disorders of hearing, the reactive loss of which, well known to psychoneurologists, is not always taken into consideration by otiatrists.

As I. Pavlov observes, "the finest elements and moments of the skeletal-muscular activity are the same stimulations as those coming from the external receptors,"[1] and they therefore form temporary bonds with all the other activities of the organism. Hence we can expect the possibility of affecting the state of the *kinaesthetic analyser* by verbal influence. Psychogenic (corticogenic) disorders of the function of certain divisions of the motor apparatus may thus arise.

Objective proof of the loss of the functions of the motor analyser under the action of corresponding verbal influence was obtained by S. Levin (1936).

Observations were conducted on children by Krasnogorsky's combined conditioned reflex secretory-motor method. During the hypnotic sleep it

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 314.

was suggested: "You can't see, can't hear and can't feel any irritation to your skin"; this disconnected the visual, auditory and cutaneous analysers, due to which the formerly elaborated secretory and motor conditioned reflexes disappeared. The secretion of saliva diminished from 25 drops to between 0 and 5 drops; at the same time there was no motor reaction. The same thing occurred when the suggestion was aimed at eliminating not the

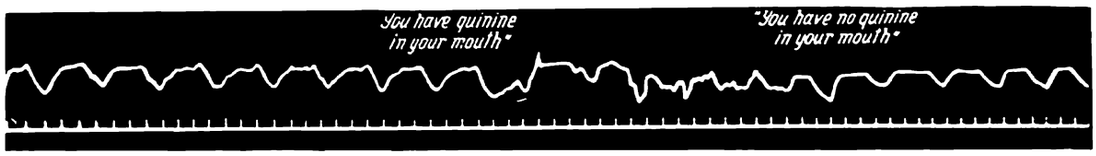

Fig. 42. Respiratory reaction to verbal suggestions: "You have quinine in your mouth" and "You have no quinine in your mouth" during suggested sleep.

receptor but the effector functions, i.e., a motor paralysis of an extremity was suggested.

According to I. Nevsky's data (1949), the verbal suggestion of a paralysis of the upper extremities made during hypnotic sleep leads to a lengthening of the chronaxie of the flexors of these extremities on the average by 2.5 times compared with its value in the same state of suggested sleep but before the aforesaid verbal influence. This is one of the objective criteria of effectuation of the suggestion.

What was said as regards the kinaesthetic analyser can be illustrated by numerous clinical observations of paralyses and hyperkineses. We are citing

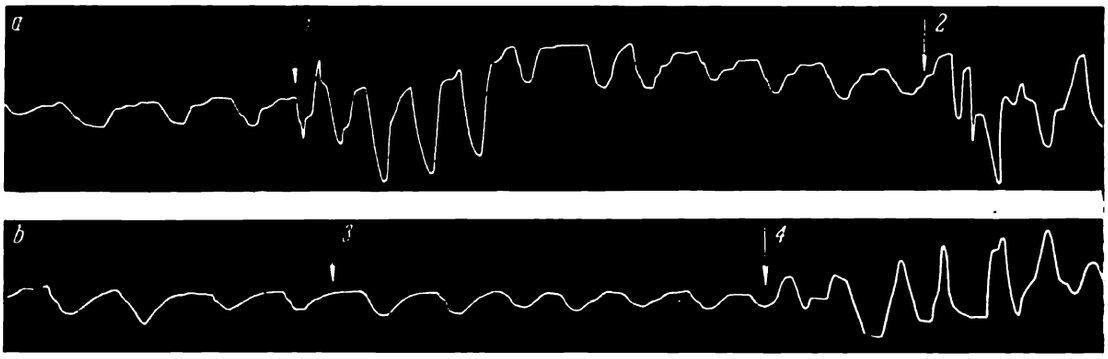

Fig. 43. Influence of verbal suggestion on the perception of stimuli by the olfactory analyser during suggested sleep.

a—respiratory reaction to real (*1*) and suggested (*2*) inhalation of aromatic spirits of ammonia; *b*—respiratory reaction to real inhalation of aromatic spirits of ammonia; after verbal suggestion of anaesthesia (*3*) and sensitivity (*4*).

some of them without mentioning the well-known "hysterical" paralyses of movements.

1. Patient K., 23 years old, tram-car conductor; the anamnesis contains mention of a fall from a tram-car without injury to the nape followed the same day by a development of a tick of the accessory nerve in the form of the so-called salaam convulsion (incessant nodding movements of the head). Despite the treatment, the tick persisted for a period of several weeks.

Under the influence of verbal suggestion the patient fell asleep fast and

deep. While falling asleep the forced movement began to diminish and during suggested sleep ceased altogether. Suggestions of a soothing and encouraging nature to forget what had happened were made. The patient woke up without the nodding movements: the salaam convulsion disappeared and never recurred. Thus, one session of verbal suggestion during suggested sleep permanently removed the fixed hyperkinesis.

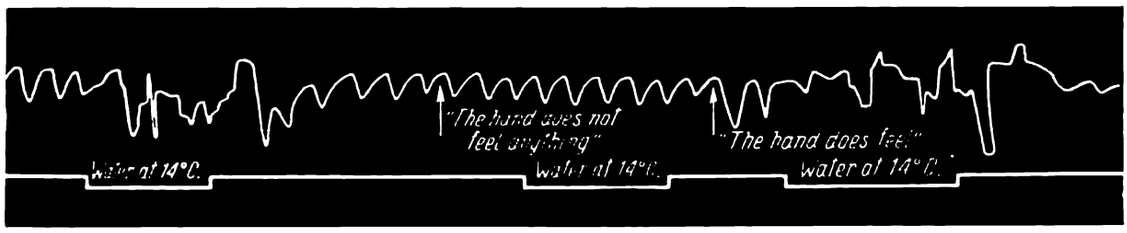

Fig. 44. Respiratory reaction to cold stimulation (immersing the hand in water at a temperature of 14° C.) during suggested sleep before and after verbal suggestion: "The hand does not feel anything" and "The hand does feel."

2. Patient G., 16 years old, with a typical choreic syndrome stayed in bed for 8 months, general strengthening therapy producing no effect, owing to which the patient's mother applied to us. An interview revealed that several days before the patient fell ill her sister died of meningitis in her arms while their mother was away. The patient took it very much to heart and accused herself of her sister's death. She began to lose weight and gradually developed choreic movements. Within a year these movements became clearly pronounced. Her condition had grown particularly grave in the last 8 months. Usual methods of treatment proved of no avail.

After a chat with us, the patient told her relatives that she felt better: "The professor told me that I am not guilty of my sister's death because she was very sick with meningitis and could not be cured." After the second chat, there was a sharp improvement and within 3 weeks the

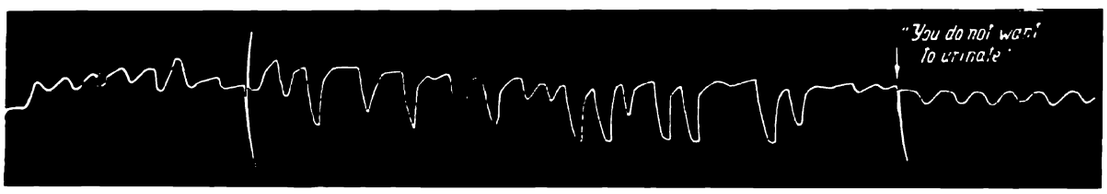

Fig. 45. Respiratory reaction during suggested sleep to interoceptive stimulations of the neck of the urinary bladder before and after suggestion: "You do not want to urinate."

choreic movements gradually faded and disappeared entirely. Since then the girl has been well, was graduated from the conservatoire and is now on the stage. When she became pregnant 3 years later, the choreic movements reappeared, but ceased again after the abortion.

The given patient had sustained a psychic trauma which caused an overstrain and disturbance of the higher nervous activity which made itself felt mainly in the region of the motor analyser in the form of a choreic syndrome, i.e., a pathological inertness of the stimulatory process related to the muscular system. In the beginning of the treatments the

psychic trauma was not taken into consideration by the physicians who treated the patient, due to which the treatments produced no effect. Psychotherapy in the form of 2 sessions of anamnestic and explanatory conversation conducted on the conscious level completely removed the pathological syndrome.

It is thus possible by means of verbal suggestion of corresponding content to relieve functional disorders of the skeletal muscles which arise in the form of paralyses, forced movements, weakening of muscular power, etc.

The *speech-motor* analyser can also be subjected to suggestive verbal influence. By means of corresponding verbal suggestion it is possible to produce psychogenic disorders of speech (mutism), on the one hand, and to remove these phenomena, on the other.

The following example taken from our psychotherapeutic practice may serve as an illustration.

Patient P., 57 years old, was referred to us with a diagnosis: "The E.N.T. organs show no pathological changes." During the examination the patient was mute and aphonic. She was worried and cried. According to her husband, she had been sensitive, emotionally labile, complaisant, industrious and dependable before her sickness. Six weeks previously she had been badly offended by rude and undeserved reproof. She was depressed and cried. She went to sleep in the evening but did not get up in the morning and continued to sleep for 10 days. During this time she repeatedly got up only to satisfy her natural needs (but without awakening). When she woke up she was unable to speak, could not sleep and was always on the verge of crying. Treatments with drugs for a period of a month yielded no results; speech was not restored.

After a written questioning of the patient and an examination of her somatic and neurological status we said to her in confident tones: "The physician will put you to sleep after which you will wake up at his command with your speech fully restored." The patient soon fell asleep. After a corresponding suggestion her speech was completely restored upon awakening. The patient was subsequently under observation for 6 years, remaining well and showing no relapses (observation by M. Kashpur).

There is no doubt that in this case there was a transmarginal inhibition (manifested first of all in the form of continuous ten-day sleep) which had also spread over the speech-motor analyser; when the generally spread sleep inhibition had worn off, the speech-motor analyser remained in a pathologically fixed inhibited state until this inert state of over-all inhibition was finally removed by psychotherapy.

Other forms of functional disorders of the speech-motor analyser manifesting themselves in the form of hysterical echolalia, verbigeration, etc., can, apparently, also be relieved by verbal suggestions during suggested sleep. This was testified to by Pavlov's statements to the effect that the patterns of skeletal movement may and must be understood as an expression of the "pathological inertness of the stimulatory process in the cortical cells connected with movement,"[1] perseverations must also be regarded

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 443.

as taking place "only in the cells of *speech* movement." (Emphasis by the author.)

As for *other* analysers corresponding objective positive and negative reactions can be created in them by analogous verbal influence.

We shall not dwell on each of them in detail and will confine ourselves to sufficiently instructive curves (Figs. 42-44).

All the foregoing fully pertains not only to the exteroceptors but also to the interoceptors, because the activity of man's internal analysers is also under the influence of the cerebral cortex and can also be modified by verbal suggestion. This can be illustrated by our observations dating from 1928.

Subject S. was in a state of suggested sleep for a long time, her pneumogram continuously recorded (Fig. 45). We suddenly observed that her respiratory rhythm, even until then, was clearly disturbed. To our question: "What is troubling you?" S. answered: "I have to. . . ." Half an hour prior to that it was suggested to her that she had drunk 3 glasses of water one after another owing to which interoceptive stimulations coming from the neck of the urinary bladder emerged. She was immediately given a negative suggestion: "You do not have to urinate," after which the manifestations of uneasiness ceased and the respiratory curve evened out again. After awakening the subject voided 225 ml. of urine as a result of the suggestion made to her.

Thus we see that by verbal suggestion it was possible to introduce changes into all the manifestations of the activity of various analysers and into the analysing function of the cerebral cortex as a whole, strengthening or, on the contrary, weakening, or even completely terminating the activity of separate analysers.

All we have said is of great importance because it testifies to the fact that both principal functions of the cerebral cortex, the coupling and analysing functions, which ensure the balance between the human organism and the external environment are subject to verbal influence. By virtue of this, the latter is capable of playing an important part in the system of man's higher nervous activity. In our subsequent exposition we shall cite numerous and various factual data confirming the aforesaid.

CHAPTER VII

DISTORTION OF PHYSIOLOGICAL REACTIONS

> ... In the peripheral apparatus of the afferent conductors we have a continuous transformation of various forms of energy into a stimulatory process. Why then should not, under certain conditions, the energy of the stimulatory process be transformed into the energy of the inhibitory process and vice versa?
>
> *I. Pavlov*

The studies described in the preceding chapter pertained directly to verbal influence on the activity of the analysers. The phenomena of loss of function (analgesia, deafness, etc.), thus created, testified to the emergence of local sleep in a certain group of cells of the corresponding sections of the cerebral cortex. Phenomena of increased function testified, on the other hand, to the rise of a local process of disinhibition accompanied by an increased excitation of the cells. Thus there was a direct reaction to verbal stimulation of some elementary content, for example: "It hurts," "It does not hurt," etc.

We shall now consider one more group of studies in which we aimed by means of verbal influence to produce various changes (modifications) in the sensitivity of the cortical cells up to the point of completely distorting it. We wanted clearly to reveal the role that can be played by a suggestion which changes the very nature of the relation of the cerebral cortex to some stimulus or other.

The possibility of obtaining perverted reactions to unconditioned stimuli in chronical experiments on dogs was first established by M. Yerofeyeva (1912) in I. Pavlov's laboratory. In response to a strong Farradic current which at first evoked a stormy motor defensive reaction, she subsequently observed a salivary reaction, while the animal was completely quiet. She managed to turn an electrocutaneous stimulus into a conditioned stimulus for a food reaction because it was reinforced by food. In the experiments conducted by M. Petrova, also on dogs, a strong Farradic current which at first provoked strong excitation subsequently began to produce sleep inhibition. A. Ivanov-Smolensky who used a sound stimulus of consider-

able force (1929) managed to develop sleep inhibition and sleep in the persons he observed.

The special studies conducted by us in 1928-1932 showed that the verbal stimulus may become a factor eliminating the action of the unconditioned stimulus or distorting its significance. Here we mean the production of precisely distorted reactions, i.e., reactions opposed in character to the adequate reactions to real stimuli. There is apparently nothing unexpected in this because K. Bykov and I. Kurtsin (1952) observed that "the force of the cortical impulses may be so great that it is capable not only of inhibiting, but also of distorting the inborn unconditioned reflex reaction."

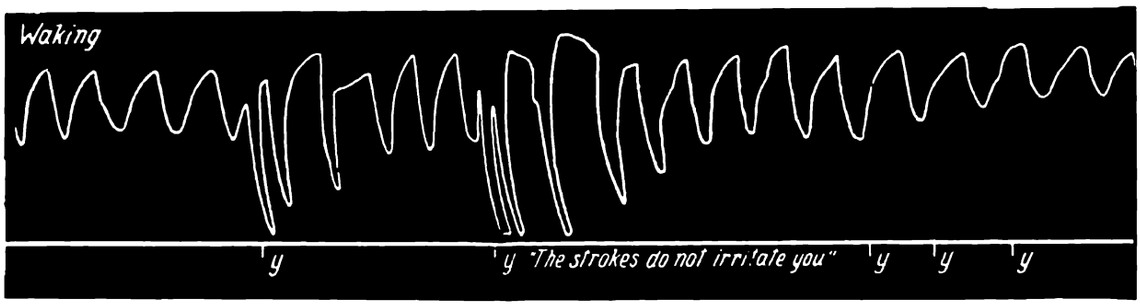

Fig. 46. Respiratory reaction to acoustic stimulation before and after verbal suggestion: "The strokes do not irritate you." *y*—hammer striking sheet of iron.

Another part of these studies is devoted to the problem of the influence of verbal suggestion on efficiency (physical work). Lastly, our clinical observations warrant the assertion that the attitude of man to some particular factor of the external environment, for example, to a situation traumatizing his mind, can also be changed by means of corresponding verbal influence.

1. The following suggestion was made in an imperative form to subject S. in the waking state: "The sounds of the hammer striking an iron sheet which formerly irritated you and which you will now hear will no longer irritate you." Fig. 46 shows the positive effect of the realization of this suggestion, whereas before then S. showed an adequate respiratory reaction to each sound produced by the hammer striking the iron, which she could not voluntarily withhold (see Fig. 10); after the aforesaid negative verbal suggestion this reaction was no longer observed, the strong sound (unconditioned) stimulations becoming indifferent for her nervous system. Thus the relation of the cerebral cortex to the given stimulus sharply changed; under the influence of a suggestion the sharp sound of the hammer striking the iron assumed an entirely new significance for it.

2. The following is another and even more demonstrative case. A suggestion: "You will fall asleep when the hammer strikes" was made to the same subject in the waking state. It was enough to produce a corresponding reaction the nature of which can be judged by the respiratory curve: almost simultaneously with the blow of the hammer against the table S. dropped her eyelids, and the kymograph recorded a calm initial inspiration and subsequent more shallow breathing. The suggestion: "You will wake up when the hammer strikes" made some time later evoked

a corresponding reaction: at the blow of the hammer S. woke up, and the respiratory curve assumed the character corresponding to the waking state (Fig. 47).

Thus, while in the first case, we transformed a sharp and strong unconditioned sound stimulus into a stimulus leading to the state of suggested sleep, i.e., into a conditioned, inhibitory, quieting stimulus, in the second case with a different content of the suggestion made, the same factor was, contrariwise, transformed into a disinhibiting, excitatory stimulus which is of an opposite significance for the nervous system. The following two studies illustrated in figures 48 and 49 can be still more demonstrative.

3. This time we used very loud rumbling of a large sheet of roof iron as a stimulus. In her waking state, the subject responded to this stimulation as well as to a loud blow of a hammer against the same sheet by a violent respiratory reaction accompanied by a rise in arterial pressure (by 15 points). A suggestion was then made to her in the same waking state: "At the sound of a blow against the iron sheet you will fall asleep"; sleep inhibition emerged in response to the subsequent blow of the hammer; corresponding changes in respiration and in arterial pressure (drop in arterial pressure) served as proof of this. Finally, the following verbal instruction was issued: "You will wake up at the beats of the metronome and will fall asleep when it is turned off." The curve shows the effect of the effectuation of this suggestion: at the very first beat of the metronome the subject awakened from suggested sleep; she was awake as long as the metronome continued beating and fell asleep as soon as it stopped (Fig. 48); the changes in blood pressure corresponding to this testified to changes in the state of the vegetative nervous system occurring at this time.

4. In this case we intended to provoke a distorted attitude to a long-acting sound stimulus (continuous loud rumbling of a sheet of roof iron). For this purpose the subject was given verbal instruction in an imperative form, while she was in the waking state: „With the first sounds of loud rumbling you will fall asleep and will sleep fast as long as it lasts; as soon as the rumbling stops, you will wake up." The very first rumbling sounds really put the subject into a state of suggested sleep. Judging by the pneumogram the suggested sleep grew increasingly deeper; as soon as the rumble ceased, the subject woke up. Before sleep, her arterial pressure was 135, during suggested sleep—130 and even 125; after awakening it rose to 135 again (Fig. 49).

All this fully corresponded to the distorted relations frequently observed in everyday life. We know, for example, that despite the rumble of the wheels of a working mill, the miller continues to sleep undisturbed, but awakens the moment the rumble ceases. The patients described by Charcot apparently fell asleep in the course of continuous studies under the influence of strong stimuli precisely because for them the latter had become conditioned stimuli for the onset of sleep.

We shall now consider another series of observations in which the verbal stimulus also proved stronger than the unconditioned physical stimulus.

5. A rubber bag filled with snow (temperature 0^0 C.) is suddenly placed (for 30 sec.) on the forearm of subject S. who is in a state of suggested

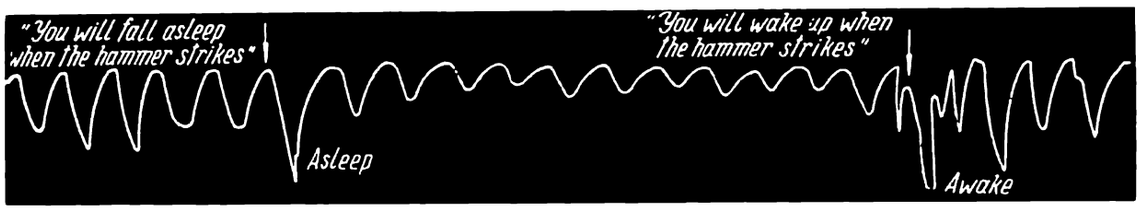

Fig. 47. Different reactions of a subject to the same stimulus depending on the content of verbal suggestion. Arrows indicate hammer striking the table. Record of respiration.

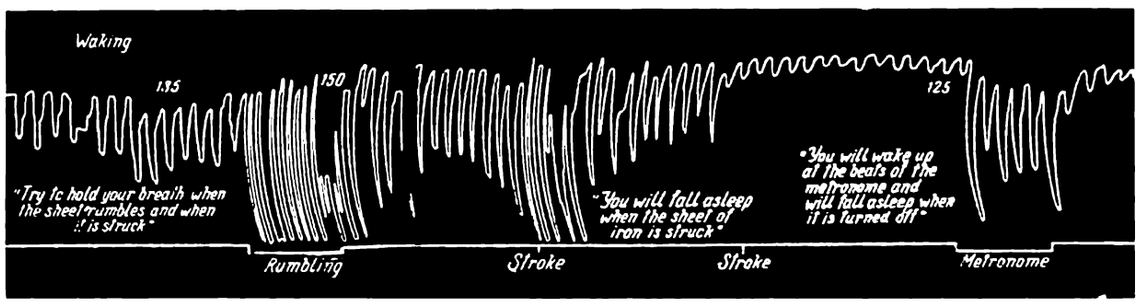
Waking
135
150
125
"Try to hold your breath when the sheet rumbles and when it is struck"
"You will fall asleep when the sheet of iron is struck"
"You will wake up at the beats of the metronome and will fall asleep when it is turned off"
Rumbling
Stroke
Stroke
Metronome

Fig. 48. Different reactions of a subject to acoustic stimuli depending on the content of verbal suggestion. Record of respiration. Figures indicate blood pressure.

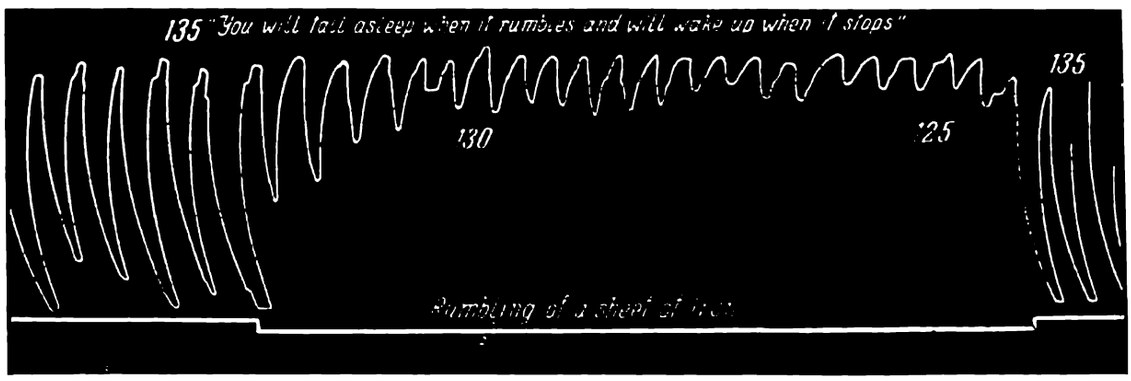

Fig. 49. Influence of verbal suggestion on the reaction of a subject acted upon by an acoustic stimulus. Record of respiration. Figures show blood pressure.

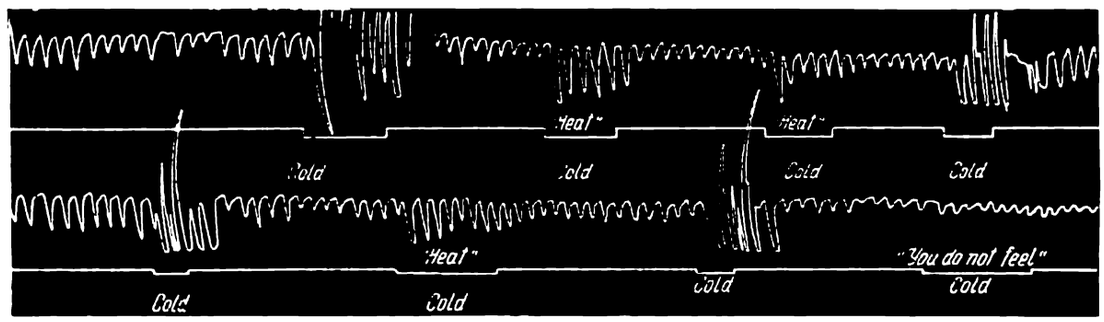

Fig. 50. Perverted respiratory reaction to cold (snow) under the influence of the verbal suggestion: "Heat."

sleep. She responds by a violent respiratory reaction. The bag is taken off, and then put on again several minutes later (for another 30 sec.) and at the same time the word "heat" is said loudly and affirmatively, as a result of which the respiratory reaction changes. Respiration becomes much more even, has a lesser amplitude and is less rapid. A similar influence, but with a more vigorous and numerous repetition of the word "heat" evokes a still calmer reaction. Finally, real cold without a preceding suggestion again provokes the former violent reaction (Fig. 50).

6. Infusion of 500 ml. of water at a temperature of 14° C. into the left ear of subject C. who was in a state of suggested sleep was accompanied by the suggestion: "Warm." This evoked in her a nystagmus to the left which corresponded to the content of the verbal stimulus and proved to be distorted with respect to the real unconditioned physical stimulus. In an opposite case while water at a temperature of 30° C. was infused into the same ear with the simultaneous suggestion of "cold," there was a nystagmus to the right, i.e., it was distorted with respect to the physical stimulus.

Thus, in both last observations, a cold vegetative reaction was transformed into a warm reaction and the warm into a cold one (i.e., in both cases adequate to the content of the verbal suggestion) by means of corresponding suggestion. The character of the respiratory reactions also changed correspondingly.

In similar studies conducted by N. Levy and R. Leidner[1] it was suggested to the subject sitting in the state of suggested sleep in a spinning chair that she was spinning in a definite direction, following which the chair was really spinned, but in the opposite direction. The symptom of the index finger arising at this time did not correspond to the real spinning, but to the *suggested* spinning, i.e., the second signal factor prevailed.

Distortions of reactions produced by verbal influence are especially clearly shown in the recent plethysmographic studies conducted by A. Pshonik (1952), in which the pain stimulations (application of heat—63° C.) under the influence of the verbal conditioned stimulus "I am turning on something warm" (43° C.) did not evoke "pain" response reactions, but "heat" reactions.

Mention must be made of the studies conducted by Marcus and Sahlgreen (Stockholm Nervous Clinic, 1925) and belonging to the same category. By means of verbal suggestions during suggested sleep they managed considerably to weaken the influence of adrenalin, atropine and pilocarpine on the vegetative nervous system and to reduce the influence of insulin on the amount of sugar in the blood of a certain diabetic patient (by a verbal suggestion to the effect that he was "injected water," whereas he was really being injected one of these substances). Gessler and Hansen (1927) studied the changes in basal metabolism under the influence of verbal suggestion. The subjects were nude and in a state of suggested sleep in a room with 0° C. temperature. A suggestion was made that they were feeling warm. According to these authors the basal metabolism was

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[1] These data were borrowed from N. Timofeyev's article published in the journal *Neuropathology and Psychiatry*, No. 11, 1936.

the same in this case as it was under usual temperature conditions, i.e., it had not changed at all. In another case, a sensation of intense cold was suggested to subjects in a laboratory with room temperature: this evoked considerable corresponding changes in the metabolism which rose by 20 to 30 per cent.

We shall now consider the studies devoted to the distortion of the influence of the unconditioned *chemical* stimuli effected by verbal suggestion.

7. In the waking state, as well as in a state of suggested sleep, our subject invariably showed a sharp emotional reaction of a negative (defensive)

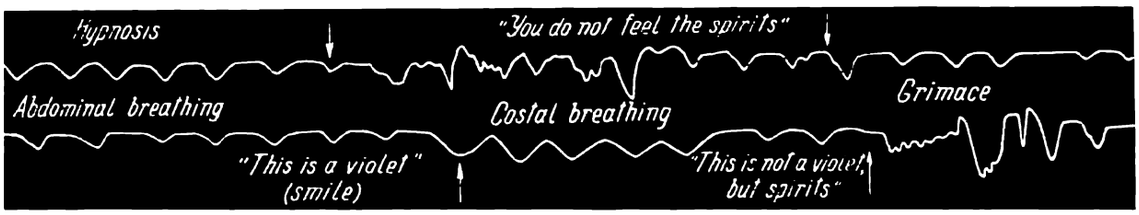

Fig. 51. Different respiratory reactions to aromatic spirits of ammonia depending on the content of verbal suggestion. Arrows show inhalation of aromatic spirits of ammonia.

character accompanied by tears in her eyes in response to inhaling the odour of ammonia. After an imperatively made suggestion: "This is not spirits but violets" her reaction sharply changed; she began to inhale the odour of ammonia with a full chest; abdominal respiration disappeared and an expression of pleasure appeared on her face. With the annulment of this suggestion her former violent negative reaction corresponding to the real stimulus reappeared (Fig. 51).

Subsequently, we decided jointly with psychologists A. Matskevich (1931), M. Lebedinsky (1941) and Y. Kozis (1951) to find out if it were possible to remove the influence of a moderate doze of alcohol by corresponding suggestion during suggested sleep, i.e., if it were possible to change the relation of the nervous cells of the higher divisions of the central nervous systems to the consumed alcohol.

8. The suggestion was made to 5 subjects put into a state of suggested sleep: "After awakening you will take a soft drink" (mineral water, soda water, etc.), whereas after awakening they actually drank a corresponding amount (150 to 200 ml.) of strong (40 proof) portwine. They exhibited none of the usual external signs of intoxication which appeared in them before then and which was objectively checked by means of corresponding psychological tests, examination of the vegetative reactions and the behaviour of the subjects. Similar observations were later also published by Prof. A. Sumbayev (1946).

These were followed by studies of a reversed order: the subjects who were in a state of suggested sleep were told they had drunk 200 ml. of 40-proof portwine whereas they had actually drunk the same amount of pure water. The external behaviour of the subjects, their vegetative reactions, the data of an experimental psychological examination and an electrocardiogram indicated changes corresponding to those emerging

under real influence of alcohol (confirmed by tentative studies conducted in 1953 by us jointly with M. Linetsky).

The following are the data obtained by these tentative studies.

9. Before the study subject N. had a heart rate of 66 beats per minute; 15 minutes after consuming 50 ml. of alcohol her heart rate rose to 73 per minute (an increase of 7 beats) accompanied by objective signs of excitement, hyperaemia of the face, increased mobility, etc. After the suggestion to wake up sober was made during suggested sleep subject N. woke up in a normal alert state. After awakening, she had a heart rate of 66 beats per minute (i.e., the same as before taking alcohol). Thus, a corresponding suggestion made during suggested sleep really freed the subject of the manifestations of the action of alcohol.

10. The same subject was put into a state of suggested sleep and told she would drink 50 ml. of alcohol upon awakening. After awakening N. drank about half a glassful of pure water asserting that she was "drinking vodka." Several minutes later with all external manifestations of moderate alcoholic intoxication she had a heart rate of 75 beats per minute, i.e., it was equal to the rate under conditions of real action of alcohol. The subsequent verbal suggestion that the subject sobered up reduced the heart rate to 70 beats per minute, i.e., to the initial state.

In 1931 we investigated the influence of suggested (i.e., imaginary) sobering-up on the efficiency of physical work on the ergograph.

11. Subject D. in the waking state worked on an ergograph lifting a 4-kg. weight at a rate of 120 lifts per minute (Fig. 52). After 2 minutes of work she drank 100 ml. of 40-proof portwine and continued her work on the ergograph. Clear signs of light alcoholic intoxication manifesting themselves in a considerable drop in the ergogram appeared in the 6th minute after the consumption of portwine. After that, the subject was rapidly put into a state of suggested sleep by a command "Sleep," and was then told to wake up and "that what she had drunk was not wine, but cider, and that she did not get drunk." The state of suggested sleep lasted only 15 seconds. The work was continued immediately after awakening and a considerable rise in efficiency was noted.

12. After working on the ergograph (*1*) for 1.5 minutes, the subject in the waking state drank 150 ml. of portwine, following which, during the immediately produced suggested sleep which lasted 5 seconds, she was told: "You drank soda water; wake up." The right part of the curve (*2*) shows the work done in the 6th minute after awakening: there were no external signs of intoxication (Fig. 52).

A. Dolin (1948 and 1952) succeeded in stopping the action of toxic doses of morphine by using conditioned cortical inhibition. In speaking about this, the author observes that the nervous state caused by the conditioned cortical bonds may under certain conditions take the upper hand over the state produced even by chemical or toxic agents (1948).

The possibility of adapting the nervous system to certain alimentary (strawberries, lobsters), pharmacological and toxic factors also effected by means of corresponding verbal influences is not devoid of significance. These include, for example, various urticarial phenomena accompanied by a tormenting itch and various other manifestations of lack of individual endurance.

Thus, A. Kartamyshev (1942) mentions several studies in which verbal suggestion during suggested sleep eliminated grave salvarsan dermatitis which hampered the administration of corresponding therapy. These may also include the investigations of the desensibilizing influence of psychotherapy in anaphylactic nettle-rash. In one of our investigations we managed to terminate a case of grave anaphylactic nettle-rash by means of a single session of verbal suggestion during suggested sleep (K. Platonov, 1925).

The investigations conducted by student Y. Levin (1952) are not devoid of interest. By means of verbal suggestion he succeeded in removing serious

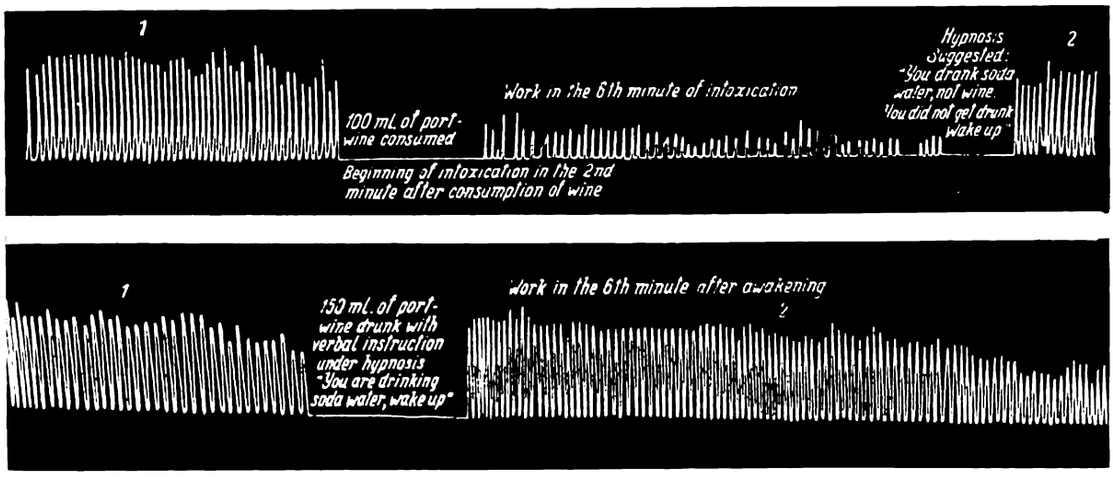
1
100 mL of port-wine consumed
Beginning of intoxication in the 2nd minute after consumption of wine
Work in the 6th minute of intoxication
Hypnosis
Suggested:
"You drank soda water, not wine.
You did not get drunk
Wake up"
2
1
150 mL of port-wine drunk with verbal instruction under hypnosis "You are drinking soda water, wake up"
Work in the 6th minute after awakening
2

Fig. 52. Influence of suggested sobering on efficiency.
1—muscular contractions recorded by ergograph before consumption of alcoholic beverages; 2—same after verbal suggestion.

collateral phenomena (headaches, dizziness, loss of appetite, intestinal pains, nausea or vomiting, sleep disturbances, itch, etc.) in patients treated by embichin; of the 14 patients in whom not a single drug used could eliminate the toxic action of embichin a positive effect was obtained by psychotherapy in 12.

In this we see direct confirmation of the possibility of exerting an influence by verbal suggestion on the reaction (resistance) of the central nervous system to the action of moderate doses of toxic substances. It is but natural that a question should arise whether the results of these investigations can serve as a prototype of the cortical (conditioned reflex) immunity of which N. Podkopayev (1926) and S. Metalnikov (1926) spoke in their time.

It will furthermore be noted that in studying the influence of the cerebral cortex on metabolism A. Dolin, Y. Minker-Bogdanova and Y. Povorinsky (1934) also obtained a picture of distorted reactions. In particular, while investigating the influence of the cerebral cortex on carbohydrate metabolism, the authors suggested to the subject, who was in a state of suggested sleep, as they gave her a concentrated sugar solution, that she was drinking distilled water. As a result, the content of sugar in the blood not only failed to increase, but on the contrary, during the first third of the experiment, sharply diminished.

A paradoxical phenomenon strikes the eye in all of these studies: under the influence of verbal suggestion, a strong unconditioned stimulus loses its force or provokes an unusual distorted reaction.

The following are a series of our ergographic studies with a suggestion of lightening the load. A 38-year-old woman and a 36-year-old man who were under observation fell asleep instantly under the influence of a short verbal instruction: "Fall asleep."

1. Subject R., 36 years old, sturdily built and possessing great muscular power, worked on Mosso's ergograph in the waking state lifting a 10-kg. weight in time with a metronome (104 beats per minute). Curve *a* (Fig. 53) demonstrates that in doing this work the subject showed clear signs of fatigue already in the 4th minute. Some time after a necessary rest, the second part of the study was begun, when after half a minute's work R. was put into a state of suggested sleep for 10 seconds during which he was told that the load weighed 5 kg. rather than 10 and that he should continue working after awakening. A similar picture of complete fatigue appeared only in the 7th minute of work (Fig. 53, *b*).

2. Subject D., 38 years old, lifted a 20-kg. weight with two hands as fast as she could in the waking state, her movements recorded on Johansen's ergostat. The work was done for a period of one min. after which the subject stated that the weight was too heavy for her (each lift was made with visible strain). Her work is shown in curve *a* (Fig. 54) and amounts to 16 kg./m. done in one minute. Immediately after this the subject was rapidly put into a state of suggested sleep during which she was told that the load weighed only 4 kg. instead of 20 and that she should begin to work as soon as she woke up. After awakening the work with the same weight was begun and at once showed a difference: the subject lifted the weight higher and more frequently without the former strain (Fig. 54, *b*), doing 350 kg./m. of work in one minute.

A study of the volume of pulmonary ventilation conducted at the same time revealed that in the first case when the weight was lifted without the suggestion that it was lighter (curve *a*) the minute volume rose from 3.5 to 13.5 litres and the recovery took 4 minutes. In the second case (under the suggestion that the weight was 5 times as light), the minute volume rose from 3.5 to 7.7 litres, recovery taking 2.5 minutes (Fig. 55).

3. The same subject. Ergogram recorded with 10-kg. weight lifted at a maximum rate (Fig. 56, *a*) following which the subject was put into a state of suggested sleep for several seconds. After the suggestion: "The weight is taken off, there are only ropes left, wake up and work," an increase in efficiency was observed (Fig. 56, *b*).

In recent years M. Linetsky made an attempt to ascertain the limits of possible suggestions to facilitate physical work done by the subject. The study was conducted in the following sequence. After the subject working on the ergograph showed fatigue, the suggestion was made: "The weight you are lifting is now twice as light." Following this, her efficiency was immediately restored. As soon as fatigue set in again, she was told that the weight was made twice as light again. And thus many times running. Efficiency was repeatedly restored. However, the extent to which the efficiency was restored kept decreasing to the point when it was no longer restored. But as soon as a new suggestion was made to the effect that the

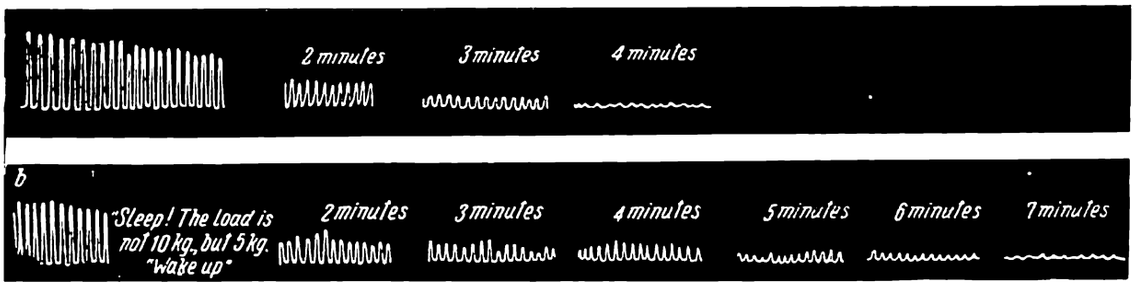

Fig. 53. Change of efficiency by verbal suggestion in hypnotic sleep.

a—muscular contractions recorded by ergograph with 10-kg. load; *b*—same after suggestion that the load was lightened.

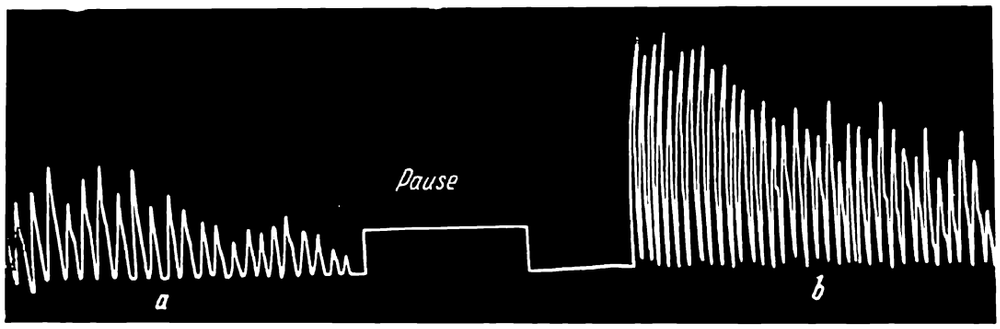

Fig. 54. Influence of suggestion of diminishing load on efficiency (ergography).

a—work with 20-kg. load; *b*—after suggestion that the load was reduced to 4 kg.

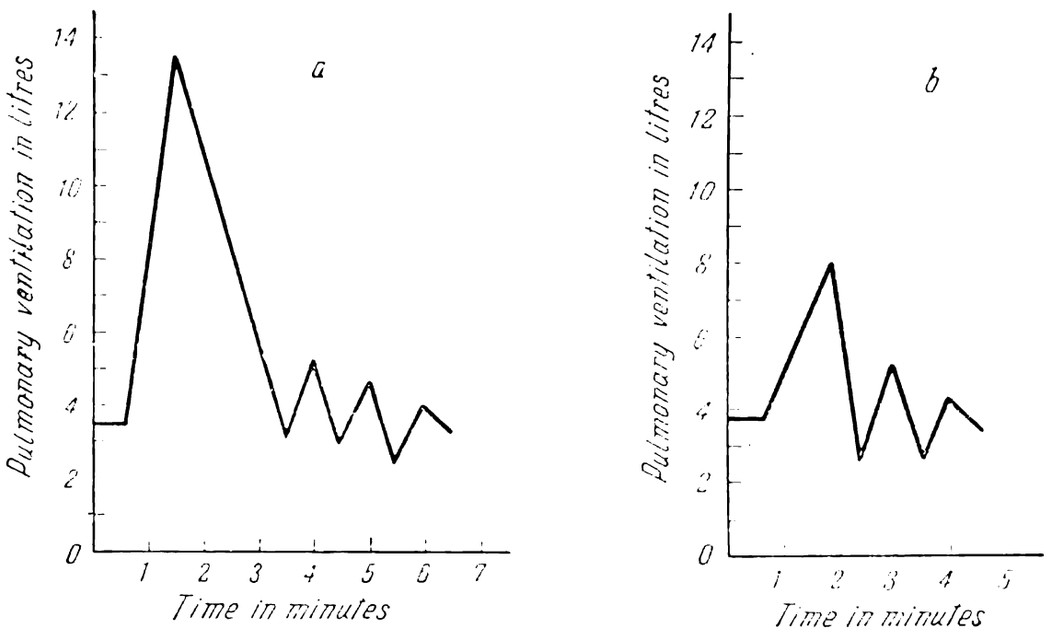

Fig. 55. Pulmonary ventilation during muscular work before (*a*) and after (*b*) suggestion that the load was reduced.

weight was now 4 times as light, her efficiency sharply rose again. Then, a similar suggestion was made each time fatigue set in. Finally the moment arrived when the suggestion that the load was made 4 times as light no longer produced any effect. It was then suggested that the weight was made 10 times as light. Efficiency was restored again, and again the moment came when this suggestion no longer resulted in a restoration of efficiency. It was then suggested that the weight was made 20 times as light. Efficiency was restored again. At this point the investigation was discontinued. Repeated studies conducted with two other persons produced the same effect.

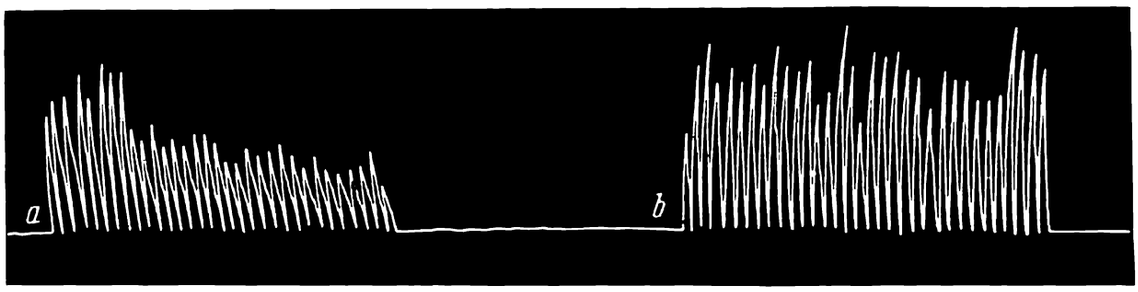

Fig. 56. Influence of suggestion that there is no load exerted on efficiency (ergography). *a*—work with a 10-kg. load; *b*—work after suggestion: "There are no weights, only ropes."

These data may indicate that the phenomenon of protective inhibition appears in the cortical cells long before they have expended any considerable amount of their energy resources.

Similar studies also relating to sham facilitation of work were conducted on our proposal and with our consultation by V. Vasilevsky (1934) on a number of persons under more complicated experimental conditions: in riding Krough's cycle-ergograph with 1, 2 and 3 loads and in lifting 5- and 10-kg. iron weights and cardboard imitations of these weights to a height of 0.5 m.

If a verbal suggestion is made during suggested sleep to the effect that the work done at an arbitrary rate has grown lighter or, on the contrary, harder, this causes corresponding changes in oxygen consumption and in the pulse rate when the work is performed at a steady rate and with a constant load. If a suggestion: "Your work has now become easier" is made after preliminary over-all fatigue caused by maximum work done over a short period of time an increase in work and a relative reduction in oxygen consumption are observed. The suggestion "You did not work" made immediately after the end of work causes a drop in the intensity of oxygen consumption during the recovery period and a lowering of the pulse rate. Lastly, a suggestion of imaginary work, made in a state of rest, produces a rise in gaseous exchange, an increase in the pulse rate and in the motor chronaxie.

More thorough-going studies were later conducted in this direction by D. Shatenshtein (1935). The theoretical and practical importance of all these data consists in the fact that they once more confirm the influence of the cerebral cortex on the processes of gaseous exchange to which

R. Olnyanskaya devoted special investigations (1950). They emphasize the important role of the suggestive influence exerted on some persons by a mere statement of how "easy" or, on the contrary, "hard" the particular work is. These data confirm Pavlov's words (1927): "It is a fact that we can suggest to the subject all that is contrary to reality and provoke a reaction directly opposed to the real stimulations." "Without stretching the point," he says further, "we could take it as the paradoxical phase in the condition of the nervous system when weak stimulations produce a greater stimulatory effect than the strong stimulations." "We can imagine that it (i.e., the paradoxical phase.—*The author*) makes itself known in the normal people who let themselves be influenced by words more than by the real facts of their surroundings."[1] Pavlov emphasized that the essential sign of higher nervous activity consisted precisely in the fact that under certain conditions the numerous signal stimuli *changed their physiological action.*

It is apparently just this that contains the physiological mechanisms of the phenomena so frequently observed in our life when positive and negative suggestions and autosuggestions not infrequently influence the entire course of the subsequent events in our life. As is well known, these phenomena were also reflected in fiction. Let us recall Gogol's *Inspector-General,* Shakespeare's *Othello,* Griboyedov's *Wit Works Woe,* the Russian proverb, "Darling not because good, but good because darling," and, finally, the words of Molière who ridicules immoderate amorousness in the *Misanthrope:* "When he is in love with a pale girl he says she is whiter than jasmine, when the beauty is as black as carnal sin, he picturesquely calls her a passionate 'darky,' " etc.

The following are some of our observations, obtained in dispensary and clinical psychotherapeutic practice, which illustrate man's adaptation to external environmental conditions or even a distorted attitude to these conditions which may be provoked by corresponding verbal influence.

1. Patient T., 13 years old, has tuberculous spondilitis. She has been confined to bed in a cast for 3 months, is extremely irritable, whimsical and restless; her sleep is disturbed. All this is due to the fact that the girl cannot reconcile herself to her forced immobility and her inability to change the position of her body. Owing to this, she has tormented herself and her parents, forcing the latter to give up a therapeutic measure extremely important and necessary under the given conditions.

Three sessions of psychotherapy in a suggested drowsy state yielded positive results. The girl quieted down and patiently lay in the same cast and in the same position for a few more months, her appetite improved and normal nocturnal sleep was restored.

2. Patient S., 25 years old, complained of extraordinary irritability and irascibility (to the point of "malice" and beating her beloved small son). She was formerly kind, quiet, easy to get along with, industrious, and strong-willed. After this sort of "explosions" she experienced debility and dyssomnia. She dates her neurotic state from the second year of her marriage when a difficult and psychically traumatizing family situation arose (her mother-in-law living together with her turned out to be an alcohol addict and her brother-in-law mentally defective and requiring

[1] I. Pavlov, *Lectures on the Work of the Cerebral Hemispheres,* 1927, p. 358.

constant care). In the course of time her neurotic state progressed especially in connection with her husband's alcoholism. She began to get pains in the stomach and vomited after her meals. Polyclinical diagnosis: ulcer of the stomach. Went on a strict diet prescribed by physicians and began to lose weight; polyclinical treatments proved of no avail. Psychotherapy was subsequently administered.

In this case, the anamnesis indicated a severe psychogenic (situational) neurasthenic syndrome in the form of an irritating debility which arose under conditions of a chronic psychic trauma. After an explanatory and reassuring chat, 6 sessions of suggestion with the following content were conducted during hypnotic sleep: "You react to your living conditions very calmly, you sleep well at nights, have a good motherly feeling for your

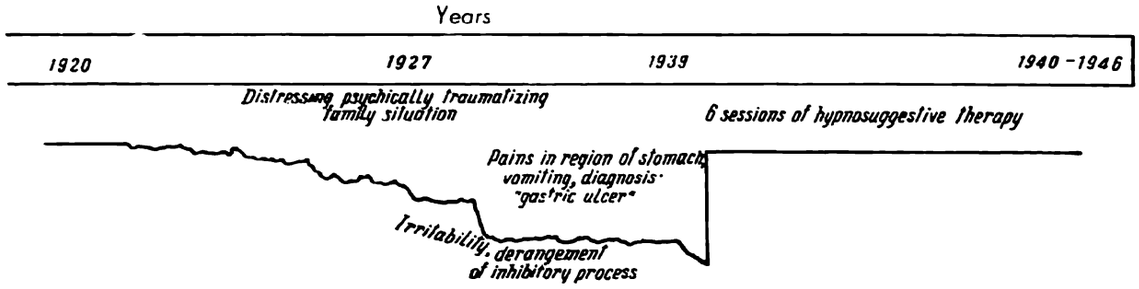

Fig. 57. Diagram showing the condition of patient S. during her ailment and after hypnosuggestive therapy. Drop of the curve signifies aggravation of patient's condition.

child, and nothing upsets you any more," etc. After each session the patient was in a state of suggested rest under hypnosis for a period of an hour. Her diet was immediately discontinued. As a result, after each session, a progressive improvement in the condition of the patient and a complete effectuation of the suggested correct attitude to her grave family situation was observed.

She was under subsequent observation for 8 years and had no relapse.

Later, during the Great Patriotic War, she experienced the hardships of evacuation and the misfortune of losing a son at the front. There was no relapse of the former syndrome (particularly the gastric). According to the patient she was always reassured by the suggestion we had made to her, which came back to her mind when she was in difficult straits.

Thus, it was possible sharply to change by verbal suggestion the relation of the cerebral cortex to the factors traumatizing the mind and to return the patient to normal conditions of a life of work (see the schematic curve in Fig. 57, which demonstrates the changes in the condition of the patient occurring throughout her illness).

3. Patient N., 49 years old, went through a serious operation several months ago, when a malignant tumour of the left mammary gland was removed. Since then, she has been suffering from an obsessed fear of a possible relapse owing to which she has been very much depressed and anxious (two of her neighbours also had cancer). Because of her illness she has become, in her own words, "extremely burdensome to herself and to those around her, lost her efficiency and interest in life."

Three sessions of motivated verbal suggestion were conducted. During the first session, the patient was in the waking state, during the second session in a drowsy state, and during the third in a state of suggested sleep. A calm attitude to her ailment, a confidence in complete well-being and restoration of efficiency, interest in life and composure in relation to the sick neighbours were suggested to her. After these sessions, the condition of the patient sharply changed: she became alert and efficient, kept well and retained her piece of mind for three years following.

Thus, by corresponding verbal influence it is possible, in certain cases, to change the attitude of man to his family life, day-to-day and business situation, which traumatizes his mind.

CHAPTER VIII

RELATIONS BETWEEN THE BASIC CORTICAL PROCESSES

> It must certainly be believed that in the overwhelming majority of cases, the ailments of the nervous system are a disturbance of the proper relations between the excitatory and inhibitory processes....
>
> ...In a difficult encounter of the excitatory and inhibitory processes, we have now a preponderance of the excitatory process, which disturbs the inhibitory process... now a preponderance of the inhibitory process which disturbs the excitatory process....
>
> *I. Pavlov*

In a healthy person the normal relations between the basic cortical processes, the excitatory and the inhibitory, if it was in any way disturbed, is rather quickly restored by itself.

However, in cases of considerable strain of the higher nervous activity, for example, due to stimulations beyond one's strength or a collision between the excitatory and inhibitory processes, this leads to a more or less prolonged disturbance of both processes.

Experience shows that by means of verbal suggestion of a definite content made in the waking state or during suggested sleep it is possible to restore the normal relations of the basic cortical processes.

This situation can be illustrated by numerous facts from psychotherapeutic practice.

As Pavlov notes, "... one of the most striking states, especially interesting and especially applicable to neurology and psychiatry is the inert state of the excitatory process, i.e., the state when the excitatory process becomes more stubborn and more persistent and thus yields less rapidly to the lawfully emerging inhibitory influences."[1]

The following are examples of this type of phenomena and of the use of verbal suggestion to remove them.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 434.

1. Patient M., 45 years old, complains of extreme irritability and of a constant fear of being uncivil to her clients. Unable to restrain her excessive irritability, she really sometimes loses control of herself despite her will. At such moments she feels a strong dislike for people, which soon wears off. She understands very well that she is wrong and tactless; she "resents it and has an unpleasant feeling that she is unable to restrain herself." This occurs to her not only at work, but also at home. All this depresses and upsets her "to the point of making her sick," especially since this state has lasted for nearly two months. Without quitting her work the patient applied time and again to internists and neuropathologists.

Her condition has not improved, however, and "has remained oppressive both for her and those around her."

The patient belongs to the strong and balanced type of nervous activity with no pathological inheritance. She has worked in a court house for 16 years and in the last few years has been unable to take her regular vacation. In her work she always has to do with people who address themselves to her with various complicated claims, requests and dissatisfactions. Her work and position require that she always be restrained, balanced, attentive and responsive, which she was before her ailment. But due to considerable overstrain caused by excessively hard work, she has become highly irritable, unable to control herself (has lost her will-power), and has "an oppressive feeling of dislike for people."

Psychotherapy in the form of 6 sessions of suggestion during suggested sleep with a one-hour suggested rest under hypnosis following each session was administered. Confirming that her irritability and feeling of dislike for people was really a result of strain, we suggested to her: "Our suggestions and the hypnotic rest increasingly restore your strength, you have regained your usual self-control, your complete composure and self-confidence. At night you sleep well and forget all of your diurnal impressions," etc.

After the treatments, the patient said she "felt entirely different and was no longer afraid she might incur trouble by her inability to control herself"; her "irritability and feeling of dislike for people had disappeared." She became even-tempered and calm and completely lost the haunting fear of the misunderstandings she might have with her clients. "I feel normal again," the patient told us, "and my only wish is that I stay this way." After that, M. was under our observation for 3 more years with no relapse. She strictly observed the prescribed instructions as regards nocturnal sleep and alternation of work and rest.

The long-continued overwork and the intense struggle against the growing lack of self-control gave rise in this patient to a considerable overstrain of the inhibitory process which resulted in its derangement. This created a pathological prevalence of the excitatory process over the inhibitory, expressed in the neurasthenic syndrome (first stage of neurasthenia, according to A. Ivanov-Smolensky). The usual methods of reassuring and strengthening therapy were unable to relieve this condition because it required entirely different influence directed forthright at the cerebral cortex in the activity of which this disturbance had arisen. It will be observed that the psychotherapy with the suggested hypnotic rest was administered while the patient continued on her job.

2. Patient S., 28 years old, complained of excessive irritability (which made it absolutely impossible for him to treat the people around him calmly and to excercise self-control), loss of efficiency, insomnia, anxiety and depression. He was making crude mistakes on his job, lacked self-control and was therefore repeatedly reprimanded. The ailment began 3 months previously when he entirely unexpectedly broke up with his wife: she left him, saying she loved someone else. He had lived with his wife for 5 years, continued to love her and could not reconcile himself to what had happened. "I want to forget her, but I can't," "I've been trying to see her again," said the patient.

Nine sessions of psychotherapy were administered during a suggested drowsy state. The following suggestions were made: "You have lost your former feeling for your wife, you have become entirely indifferent to her because she is unworthy of your attention. She is no longer a friend of yours and casual recollections of her or meetings with her do not mean anything to you any more. You have fully regained your peace of mind and are again well and efficient as before," etc. As a result, the former feeling for his wife sharply diminished. "Somehow I no longer think of her," the patient said. He regained his normal health and efficiency. Positive catamnesis for two years (observation by N. Zelensky).

Thus, the dynamic pattern was suddenly deranged in this patient to a point beyond the strength of his nervous system which led to a deep disturbance of the cortical dynamics expressed in a considerable prevalence of the excitatory process and a sharp weakening of the inhibitory process, diminishing the analysing function of the cerebral cortex and the ability to control himself.

In both examples cited by us, the deranged relations between the basic cortical processes were restored by means of verbal influence exerted in the drowsy state or during suggested sleep. This was achieved by a suggestion that "complete peace of mind and the ability to control herself were regained" (in the first case) and that "the former feeling was forgotten" which, under the circumstances, had exerted a traumatic influence on the patient's cortical dynamics (in the second case).

The role of this process of "forgetting" an experience very important in the physiology of the higher nervous activity was particularly vividly emphasized in his time by Pierre Janet (1903) who observed that "we would make one of the most valuable contributions to pathological psychology if we found an efficient means of forgetting certain psychological phenomena." In this case the *suggestion to forget made in a drowsy state* was just this means. In a number of cases such a suggestion is a remarkable method which decisively removes the aftereffects of a psychic trauma.

Narcolepsy may arise as a result of a chronic prevalence of the inhibitory process when the excitatory process is easily exhausted (weak). This type of disturbance in the relations between the basic cortical processes can, in certain cases, also be relieved by corresponding verbal influence.

The following is an example.

3. Patient T., 33 years old, complained that whenever he experienced anything unpleasant he immediately fell asleep which was likely to occur anywhere and at any time. Unpleasant words addressed to him, an insult

or an offence, etc., may serve as negative, sleep-inducing experiences. Thus, a physician's request that he await his turn in the reception room of the polyclinic was enough for him immediately to fall asleep (right there, in the reception room).

Such phenomena may recur several times a day.

It proved impossible to disclose the reason for the formation of this type of distorted pathological conditioned bond in the form of a state of sleep emerging as a result of unpleasant emotions.

Psychotherapy was administered in a drowsy state with the following imperative suggestions: "Your emotions do not put you to sleep. You will no longer fall asleep because of personal offense and you will react quite calmly to all sorts of unpleasant situations." This was enough completely to eliminate the fixed narcoleptic conditioned reflex reaction; coming several days later the patient stated that the sleep attacks due to various disappointments or unpleasant experiences no longer recurred.

Three more strengthening sessions of suggestion (also in a drowsy state) were administered, after which the patient was under observation for a period of 5 months with no relapses (observation by I. Halfon).

Thus, the prevalence of the inhibitory process, caused by the weakness of the excitatory process, resulted in light sleep attacks in the form of emotiogenic narcolepsy. The verbal influence exerted in a drowsy state eliminated the attacks of narcolepsy, which testified to its functional nature.

The observations cited below are characterized by a picture of long-continued "torture" of the inhibitory process and its derangement, the results of which were removed by verbal influence.

4. Patient O., 32 years old, was brought to the polyclinic of the Red Cross (Voroshilovgrad) by her relatives for a consultation as to placing her in a psychiatric hospital. The patient was disoriented and excited; she cried and mumbled: "What have I done!" Her husband and his parents who brought her to the polyclinic stated that 2 hours previously, when the family was making ready to receive guests who were about to arrive at any moment, the patient tore the table-cloth with all of the layout off the table, began to trample it all under her feet violently, shout, tear her clothes and the hair on her head; she ceased to recognize the people around her and called out unintelligible words. A general practitioner, who was summoned, voiced the assumption that the patient had developed an acute psychosis and proposed to send her to a psychiatric hospital.

A light hypnotic state was induced and after a brief rest in a drowsy state the patient began to answer questions and gradually told us the following. She had married 3 years before, loved her husband very much and was also loved by him. However, her husband's parents and, especially, his mother had given her a very unfriendly reception. Subsequently, they somehow took her for granted, but the patient continued to feel the unfriendly attitude of her mother-in-law, and whatever she did was "all not the way" her mother-in-law would have it. "She was always after me with her reproaches," the patient said. "*I always controlled myself*" (emphasis by the author) and when I was alone I cried a great deal, but never told my husband anything about it because I did not want to upset him. I pleaded with my husband to get a separate apartment in order that I may not live

with my mother-in-law, but he refused to do it." Her husband was frequently away on business and then, according to the patient, "it was particularly hard for her to stay with her mother-in-law and she was growing desperate." This gave rise to extreme irritability, insomnia and apathy, and she completely lost her appetite. To our question: "Why did you yank the table-cloth off the table?" the patient answered: "I don't know myself how it came about. As we were laying the table and I was setting the dishes I was excited, probably because my mother-in-law, who stood at the other end of the table, kept watching me work. When I finished, she walked over to the table and began demonstratively to change everything around. I felt very much hurt, everything went dark before my eyes and I was nauseated. I remember crying out and grasping at the table-cloth, but I do not know what happened then."

A sharp derangement of the inhibitory process was diagnosed in this case. Seven sessions of psychotherapy were administered in a drowsy state with a resultant positive effect. The patient's husband and the husband's parents were explained the mechanism of the fit and the incorrect behaviour of the mother-in-law. The patient was subsequently under observation for a period of 7 years and showed no relapses or other disturbances in her behaviour (observation by Y. Katkov).

In this case, the unfavourable family relations resulted in an overstrain of the inhibitory process (the patient always tried to control herself). This led to its derangement which expressed itself in the form of an acute hysterical reaction with the consciousness muddled and subsequent amnesia.

5. Patient N., 28 years old, came with complaints of obsessive desire to commit suicide, a haunting feeling of fear, a striving for seclusion. nocturnal fits during which it seemed to her "the walls were moving closer together and were choking her child," whereas she had no child "and never had one"; during these fits, she gasped for breath, lost consciousness, was revived and only fell asleep towards morning, her sleep being disturbed by nightmares. She was also highly irritable, lost her appetite, felt generally weak, which kept her in bed, and lost weight (lost 16 kg. in a short period of time).

The anamnestic interview revealed that the patient had grown as a healthy child without any pathological heredity. She had been married twice but her attempts to have a family were in vain because both her marriages were unsuccessful. Two years after her first marriage she parted with her husband because "there were constant quarrels caused by her husband's rakish life." Her second marriage was also unsuccessful, her husband's alcoholism leading her to attempts at suicide. During a reassuring interview she was advised to "disregard her husband's behaviour and arrange a normal family life." Six sessions of psychotherapy during suggested sleep were administered in the course of two weeks with a period of deep suggested rest following each session. The appetite and nocturnal sleep improved right after the first session; her spirits also rose. Her hallucinations, suicidal tendencies and crying spells subsequently diminished. She became more sociable. The last two sessions fully restored her health, she began to accept her husband's behaviour much more calmly and even started working. She said she had "completely forgotten" her

past and soon afterwards left her alcoholic husband and married again. Five years after the psychotherapy she informed us she was well, alert and efficient, and had a child.

In this case, we were dealing with a chronic (for a period of years) overstrain and derangement of the inhibitory process in a person apparently belonging to the strong variant of the weak general type of nervous system. The reason for the derangement lay in the extremely unfavourable life's situation. In the long run this resulted in a chronic neurotic state with sporadically appearing ultraparadoxical symptoms (hallucinations with a child she did not have) which developed according to the hysterical type with a prevalence of excitation from the subcortex during a sharp weakening of the inhibitory process.

Psychotherapy removed the pathological symptoms and helped to modify the patient's higher nervous activity in the desirable direction.

The pathologically firmly fixed prevalence of the inhibitory (depressive) state with which a physician also frequently has to deal in daily psychotherapeutic practice can be similarly removed by corresponding verbal influence with an equilibrium of both processes—the excitatory and the inhibitory—attained in this case.

1. Patient P., 33 years old, was brought with complaints of a very serious depressed state in which she had been for the last five years, owing to the death of her father followed by that of her beloved sister. The latter circumstance served as the direct cause of her ailment, because her sister had died in her arms. An obsessive idea that she was to blame for the death of her sister emerged and became fixed in her against the background of general exhaustion and the depressed state. A haunting picture of her sister's last days gave rise to unbearable anguish. At the same time she began to fear physicians, could not stand any music (her sister had loved music and had played the piano), feared twilight and was afraid to go out into the street alone; she was constantly depressed, thought life was useless and had developed suicidal tendencies. She always wore mourning clothes and avoided company.

The consolations and persuasions of the people around her irritated her without accomplishing their aim. She refused treatment and was brought to us by her relatives against her strong resistance.

All reassurances, persuasions and explanations were fruitless and it was therefore decided to administer psychotherapy during suggested sleep.

The first session of suggestion during suggested sleep gave her, according to the patient herself, "intense relief and a feeling of unusual well-being"; she no longer experienced any fear and after the session stated she "could go back home all alone." During the second session (6 days later) to which she came calmly alone, but still with an obsessive idea of her sister, she fell asleep rapidly and deeply. This session brought about considerable improvement in every respect. The third (and last) session took place three days after the second session. This time a prolonged suggested hypnotic rest was administered with the following suggestion: "Your former grave experiences no longer trouble you."

Subsequent observations showed that the 3 sessions wrought sharp changes in her state, which surprised not only her relatives, but the patient herself. "I became the same I had been before my ailment." The depressed

state that had lasted all those years was no more. Subsequently she wrote to us: "I feel so good and free and so much at ease as if some mental operation was performed on me and all that was sick and bad was cut out." She wrote that she enjoyed music, associated with the medical personnel, did not notice the approach of twilight and recollections of her sister "no longer gave her any heartaches." She stopped wearing mourning. The headaches that had tormented her all those years were gone. She was under our subsequent observation for 22 years with a positive catamnesis and no relapses.

Thus, in this case, it was possible completely to relieve a grave and long-continued (5 years) depressed state by verbal influence. At the same time the firmly fixed obsession with all the attending symptoms was also completely removed and the normal relations between the basic cortical processes were restored. This returned the patient to her pre-morbid state, restored her interest in life and helped her regain her efficiency. As we see, in this case there was a pathological inertia of the inhibitory state with a pronounced weakness of the cortical cells resulting from unendurable excitations of the cerebral cortex.

As regards the phobias (fear of twilight and fear of going out into the street alone) which the patient had developed, it would do well to recall Pavlov's well-known words to the effect that "timidity, cowardice and especially morbid phobias are based on the simple predominance of the physiological process of inhibition as an expression of weakness of the cortical cells."[1]

2. Patient Z., 26 years old, complained of a severe depressed and dejected state, loss of interest in life, suicidal tendencies, frequent changes in her mood, nightmares, unmotivated crying, crying out in her sleep and sometimes sleep-walking. She neglected her home and stopped going to work. She had been sick one year but considered herself nervous and impressionable since childhood. She had married for love at the age of 18, was well, efficient, and happy in her married life. In the 7th year of her matrimony her husband committed adultery and she divorced him. The patient developed a sharp psychotic depressed state accompanied by fits of twilight consciousness, loss of sleep and appetite. Thoughts of her former husband and tormenting questions as to "what to do and what the way out was" kept occurring to her. The patient was in a continuous state of anxiety and desperation. She no longer took care of either her children or her home. The depressed state became fixed and persisted for a period of a year.

Heredity: her mother was a hysterical woman, her father, a TB patient, had committed suicide.

An anamnestic interview, corresponding persuasions and explanations proved ineffective. During the subsequent two sessions of psychotherapy it was possible to induce a drowsy state of medium intensity and make a corresponding verbal suggestion, the content of which included all that had been said during the preliminary, explanatory conversation. The patient felt better right after the second session: the thoughts about

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 291.

her husband, as she put it, "somehow faded"; she slept at night and her general condition was satisfactory. Three more sessions with suggestions were also conducted in a drowsy state. She was told that all she had experienced no longer affected her normal state, that she did not think of her husband any more and reconciled herself to his absence, that her interest in life was restored, that she regained her self-control, began to care for her children, felt quite good, slept well at night, etc. This fully restored her interest in life, she began to attend to her children and take care of her home, and felt good. After discharge from the hospital she went to work, and was kept under observation for two years during which there was no relapse (observation by Z. Kopil-Levina).

As we see, a strong derangement of the higher nervous activity developed in the patient and expressed itself in a form of an inert, inhibitory state as a result of a strain of the cortical processes unendurable for the given nervous system. Psychotherapy of corresponding content completely relieved this inert inhibitory state, and normal cortical dynamics were fully restored despite the pathological heredity.

It will be recalled that speaking about the physiological mechanism of the inert inhibitory state, I. Pavlov observed that "... any conception of the inhibitory effect, whether out of fear, interest or profit, by repeatedly concentrating and growing stronger in the cortex by force of the hysterical person's emotionality will provoke and fix these systems for a long time just like the word of the hypnotist in hypnosis until a stronger wave of excitation finally washes these inhibitory points away."[1]

It may be assumed that in this case the role of this "stronger wave of excitation" was played by the imperativeness of the verbal influence which had a forthright pathogenetic direction.

It is well known that a state of excitatory weakness is one of the pathological manifestations of the excitatory process.

Speaking of the state of the nervous cells of the cerebral cortex under conditions of "excitatory weakness" I. Pavlov observed that in this state "... the cell became very fidgety, very rapidly responded to stimulation, but then became quickly bankrupt and quickly weakened. We called this explosiveness."[2]

Can this state of "explosiveness," the state of pathological weakness of the cortical cells, be relieved by verbal influence on the cortical dynamics, i.e., by influence exerted through the second signal system?

Apparently it can; this is proved by certain facts taken from our psychotherapeutic practice, which we shall now consider.

1. Patient C., 43 years old, came to us complaining of extreme irritability, inability to stand loud sounds and bright light; he said he easily became enraged and during a fit of rage he could not control himself and was ready to break everything within reach. The fits of irritability and inexplicable rage were followed by a state of utter weakness and lassitude. He suffered from persistent insomnia, and the slightest rustle or a weak light irritated him and interfered with his sleep. He was in low

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 379.

[2] *Ibid.*, p. 435.

spirits, his efficiency was sharply reduced and he was sexually weak. In his work he made frequent oral and written mistakes and at times felt that "his arm did not work," that he could hardly lift his right arm.

This state developed gradually. Before this the patient worked on a military staff for a period of years and lived for a long time under strenuous front-line conditions. After his discharge from the army the morbid phenomena continuously increased, which impelled him to apply for medical aid.

Objectively: sharply pronounced neurotic state of a neurasthenoid type. The patient is emotionally tense and jumps up from his chair at unexpected sounds; the muscles of his face twitch, he blushes and trembles all over. He is very impatient while waiting to be received by the physician, cries as he relates his experiences and sometimes breaks out in sobs. The neurological status includes vascular lability, pronounced tremor, excessive sweating and heightened knee reflexes.

Two sessions of explanatory psychotherapy and six sessions of suggestions during suggested sleep with a one-hour suggested hypnotic rest following each session were administered. It was thus possible fully to remove all manifestations of the morbid state; the patient grew calm, cheerful, efficient and well-balanced. He slept well at night despite the fact that his wife worked on a typewriter in the same brightly-lit room. In the physician's office he related his experiences calmly and without any tears. He was under our subsequent observation for a period of 4 years and suffered no relapses (observation by M. Kashpur).

We thus see that an acute excitatory weakness of the cortical cells which can be characterized as a state of "explosiveness" was relieved. The cortical dynamics were radically changed, reorganized and balanced. All this was accomplished by verbal interference alone under conditions of a hypnotic inhibition of the cerebral cortex.

2. Patient K., 28 years old, came to us in 1946 complaining of extreme irritability, conflicts with the people around him, affectogenic attacks with a convulsive component and loss of consciousness, difficulty of falling asleep, light and disturbed sleep with nightmares during which he dreamt of battles. The patient had formerly been a flyer; in 1943 he sustained a pressure injury with loss of consciousness, subsequent deafness and mutism, which was later replaced for some time by stuttering. In 1944 he sustained a splinter wound in the stomach owing to which he had 3 abdominal operations. In 1945 he was discharged from the army and got married.

The neurotic state developed gradually; six months ago it had grown worse, the patient had his first attack, the following attacks giving rise to sexual weakness. His ailment was provoked by a long-continued sickness of his child, owing to which he went nights on end without sleep and had considerable trouble on his job. During one of those sleepless nights the patient dozed off, then suddenly jumped of his bed in a drowsy state, snatched the crying child from his bed and threw him forcefully into the corner of the room. After this affect, the patient fell down and had convulsions. Bromides and luminal proved helpless. The attacks grew more frequent and occurred at home, on the job, and in the street.

Objectively: the patient is emotionally labile, cannot endure waiting, is extremely impatient, cries, trembles and beseeches the physician to "save him and his family."

Six sessions of psychotherapy, two of which were conducted in the waking state, the rest during suggested sleep, reassured the patient. After the very first session conducted in a drowsy state the patient became more balanced and his attacks no longer recurred. During the fifth session the patient lapsed into a state of deep suggested sleep with an independently developed dream: he dreamt of lying quietly while blue tram-cars, blue automobiles, blue trolleybuses, etc., moved before his eyes. During the sixth session he fell fast asleep and also dreamt he was lying on a meadow with a blue sky over his head and a blue lake and blue forget-me-nots before his eyes. No dreams had been suggested to the patient.

His behaviour altered sharply during the period of treatment: he patiently awaited his turn in the reception room, had no conflicts with the other patients, regained his equanimity and confidence in a cure; his attacks stopped and he re-established his relations in the family and at work. At the end of the course of psychotherapy, all the symptoms of his disease disappeared and did not recur for a period of a year. But a year later he had a relapse in connection with a number of rapidly succeeding psychic traumas (father's death, sister's suicide and his mother's serious illness); attacks with loss of consciousness reappeared along with an acute neurotic state. Two sessions of hypnosuggestive therapy made him quite well again. Subsequently, he remained efficient for a number of years, though showing heightened irritability and explosiveness; the attacks ceased (observation by M. Kashpur).

In both foregoing examples we were dealing with persons apparently belonging (on the basis of anamnestic data) to the strong and well-balanced type of nervous system.

In both patients, the pathophysiological picture appears as follows: a weakness of active inhibition gradually develops and manifests itself in lack of self-control, fits of rage, etc.; vegetative symptoms in the form of vascular lability, excessive sweating and disturbances of sleep are added later (and prevail in the picture of the disease); an overstrain of the excitatory process subsequently occurs, transmarginal inhibition arises and manifests itself in general weakness, lassitude, a desire to get away from the collective and the family, a reluctance to think, move or speak. In the first patient this transmarginal inhibition is expressed particularly vividly in the subjective feeling of "heaviness in the right hand" (the patient was doing office work which he did not like), which he defined by the words "the hand won't work." The second patient lapsed into a deep sleep after violent excitement. Thus in the first case the transmarginal inhibition was expressed locally, in the second—throughout the cerebral cortex.

The authority of the medical establishment to which the patient applied for help, the awareness (as a result of the physician's explanations) of the reasons, conditions and mechanisms of the development of the disease and the possibility of a regression of the morbid symptoms, the belief in the possibility of a cure suggested by the physician and the desire of the

patients to get well as soon as possible helped them to get well in a rather short time.

Thus we see that with the aid of psychotherapy it was possible in both cases to remove the results of the overstrain and derangement of the excitatory and inhibitory processes which had led to the phenomenon of excitatory weakness.

Thus, in all of the aforementioned cases (of which there are quite a few in psychotherapeutic practice) directed verbal influence relieved the disturbances in the equilibrium of the cortical processes and returned the cortical dynamics to their normal state.

CHAPTER IX

MOBILITY OF THE BASIC CORTICAL PROCESSES

> ... Since the environment of the organism constantly varies, often unexpectedly and a good deal, both processes must, so to speak, keep time with these variations, i.e., they must have high mobility, the ability, at the request of external conditions, rapidly to cede and give advantage of one kind of stimulation to another, of excitation to inhibition and vice versa.
>
> *I. Pavlov*

Observing various cases in the pathology of the higher nervous activity, Pavlov emphasized that: "...we can make sick both the excitatory and the inhibitory processes by changing the inhibitory state of the cell into an excitatory state and vice versa precipitately and without intervals. We usually call this a clash of the excitatory and the inhibitory processes." Further he writes that "during the clashes only the cells with strong basic nervous processes and especially with greater mobility of these processes can keep their integrity and health."[1] The ability to change the conditioned stimuli into their opposite is determined precisely by the mobility of the nervous processes. It will be noted that balancing the excitatory and inhibitory processes timed for different agents is a difficult task for the nervous system and requires great strain. Some sections of the cerebral cortex may, in these cases, easily find themselves "under the mutual assault" of the opposite processes of excitation and inhibition directly provoked by corresponding stimulations. Pavlov illustrates the point by the following example taken from life: "For example, if I do something I am directed by a certain excitatory process and if I am told at that time to do something else, I don't feel right. This means that the strong excitatory process that engaged me must be inhibited and I must change to another process." Thus, he says, "you experience a strong excitatory process while the circumstances imperatively demand that you inhibit it.

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 434.

And this frequently leads to a disturbance in the normal activity of the nervous system."[1]

The speed with which the basic processes can replace each other (the excitatory replace the inhibitory and vice versa) has its physiological limit. If the cortical dynamics are normal " . . . both the excitatory and the inhibitory processes . . . perform a certain movement along the mass of the cerebral hemispheres, the speed of this movement measured not only in seconds but also in minutes."[2] Therefore, if the requirements of life exceed the speed of movement of the processes natural for the nervous system, the nervous activity is deranged, the derangement based precisely on "an overstrain of mobility."

It seems to us that the observations cited below can serve as an illustration of this type of derangement of the higher nervous activity and of the efficiency of psychotherapy administered in these cases.

1. Patient T., 40 years old, was hospitalized in April 1934 with complaints of crying fits, dejection, dizziness, pains in the extremities, physical lassitude and general fatigue. Objectively: excessive perspiration, tachycardia (pulse 98), tremor of eyelids, Graefe's sign, lively tendon and skin reflexes, and dystrophy. No organic disturbances. On the part of the emotions: increased emotivity and tendency to cry at every recollection of the experienced events.

The ailment began in February 1934 when, while driving a train he found himself in an extremely dangerous position which threatened to wreck 2 passenger trains. The nearly inevitable catastrophe was prevented only by the fact that he began to blow warning whistles and stopped his locomotive. After this case the patient developed acute diarrhea (20 to 30 times a day); two weeks later he developed crying fits which recurred several times a day. Before coming to the clinic where he was referred to by the district psychiatrist he had been treated in a dispensary, but uselessly. Before this ailment he had been well and had no hereditary pathology; as a child he developed normally, started working at the age of 15, fought in the war where he was wounded in the forearm. Upon return home he had learned the trade of a fitter. Has been working on the transport since 1924 (first as an oiler, then as a fitter, fireman, assistant locomotive engineer and in the last year and a half, as locomotive engineer).

The ailment apparently resulted not only from the extreme overstrain of both cortical processes, but also from the rapid replacement of one process by another which proved exceedingly hard on his nervous system. All this required strenuous mobilization of all the available resources of the cortex and subcortex, and in 1 or 2 seconds at that.

Seven sessions of psychotherapy were conducted during suggested sleep; it was suggested to the patient that he take his experiences calmly, especially since there were no evil results and that he would get well and would resume work. After the 4th session (5 days after the beginning of the treatments) the attitude of the patient to what had happened changed

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 264-265.

[2] *Ibid.*, p. 263.

and he was now calm when the experience was mentioned. The course of psychotherapy yielded positive results; the patient is well and is working as a locomotive engineer. He was under subsequent observation for a period of a year with no relapses (observations by A. Konstantinova).[1]

2. Patient S., 26 years old, of an asthenic constitution with no pathological heredity entered a psychoneurological hospital with complaints of headaches, unpleasant sensations in the back, attacks of dizziness accompanied by "convulsions throughout the body," but without loss of consciousness. He had taken sick a month previously, after an enormous nervous strain, when he succeeded in preventing a train collision. From the stories told by the patient and the physicians who have treated him we learned the following:

On the night of September 12, 1930, while the train on whose locomotive S. was working, was in motion, the locomotive engineer suddenly started blowing danger whistles and braking. Patient S. saw the danger that threatened the train: some cars that had broken away from a goods train ahead of them were rolling back down the track with terrific speed. The train crew, with S. taking part, managed to prevent an almost unavoidable wreck, all this occurring under extreme tension and enormous excitement. While telling about this the day after it had happened, the patient suddenly began to moan, fainted and, in convulsions, shrieked: "Help!", "Shut the valve!" He was brought to a railway polyclinic in that condition. The convulsive attacks recurred one after another and could be stopped only by shouting at the patient. However, the moment the patient was left to himself, his eyes would again be fixed on one point, his face would express horror after which the moaning, convulsions and complete loss of contact with the surroundings would recur. During the rare conscious intervals the patient would say that he could see a picture of a wreck before his eyes. He was in this condition all through the forenoon of September 14th.

When the patient regained consciousness he did not care to stay in the polyclinic, refused medicine and wanted to go home. However, his orientation was not fully restored, and during the slight improvements he was still in a twilight condition. Finally, overcoming the resistance of the patient with difficulty, we managed to put him to sleep by suggestion. In the state of hypnotic sleep he was given a suggestion of a reassuring character after which he felt better and was sent home. But the attacks recurred the following morning with the same force and continued for a period of 4 days despite the administration of large doses of bromides.

Four days later, the patient was brought to the polyclinic again in the same grave condition as the first time. This time it was possible instantly to induce sleep and to suggest calmness, forgetfulness of his experience and a long hypnotic rest. Upon awakening the patient was calm and quite oriented in the surroundings. He was discharged in good condition. Two days later he came to the polyclinic by himself, the number of attacks diminishing (to five a day). One more session of suggestion during deep

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[1] For greater detail see K. Platonov, 1941.

suggested sleep was conducted, after which the number of attacks decreased to 3 a day. Finally, after the sixth session, the attacks stopped completely.

There were but few sessions of hypnosuggestive therapy during the following two months, the patient having only two attacks during that time. Since the attacks recurred, the patient was sent to a hospital where a suggestion was made during suggested sleep to the effect that he should not trouble about anything connected with trains and locomotives. Six sessions of psychotherapy were conducted during his stay in the hospital with the result that the attacks growing weaker and rarer after each session gradually ceased. He was discharged from the hospital and went back to his former job as an assistant locomotive engineer. Subsequently he passed his examination for a locomotive engineer. He was under observation for a period of three years, running a locomotive all that time (observation by A. Konstantinova).

Both foregoing examples are extraordinarily alike in the situation that traumatized the mind and in the mechanism of derangement which resulted from an acute overstrain of the mobility of both cortical processes. We have cited both cases intentionally in order to show that similar situations lead to identical pictures of a neurotic condition. Psychotherapy also produced identical results: in both cases the acute overstrain of both cortical processes and of their mobility was completely relieved. Psychotherapy rapidly restored the efficiency of both victims.

I. Pavlov observed that "... a difficult meeting, an unusual combination of the two opposite processes—excitation and inhibition—either as regards time or intensity, or both, leads to a long-continued derangement of the normal balance between them."[1] If a strong excitatory process has arisen in the cortex and the situation imperatively demands that it be inhibited, this "morbidly affects" the entire activity of the brain, not infrequently leading to a prolonged disturbance. The clinical example of chronic overstrain of the mobility cited below may illustrate the aforesaid and show the efficiency of the administered verbal suggestion.

1. Patient K., 23 years old, test pilot, with 381 flights to his credit, awarded numerous prizes and 14 testimonials in the two years of his service. Apparently belongs to the strong and well-balanced type of nervous system (sanguinic) and has no hereditary pathology. However, he lived and worked under extremely unfavourable conditions. He was the eldest son in a poor family of 12, which he had to provide for since there were no father or mother. His service connected with frequent flights, sometimes kept him away from his family for long periods. Engaged in the strenuous work of a test pilot he was at the same time constantly worried about the needs of his family. In addition to certain day-to-day hardships he was beset by the urgent cares connected with the assignments he received, the latter being technically difficult for so young a specialist as he was. He not only had to think them through thoroughly, but also to make a number of complicated and responsible preparatory tests. By

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 285.

virtue of this, two mutually excluding extremely tense excitatory processes, each of which was of a dominant nature, continuously clashed in his cerebral cortex.

The overstrain gave rise to a neurotic condition accompanied by extreme irritability, disturbance of nocturnal sleep, rapid fatigue, lassitude, forgetfulness and headaches. In half a year's time the patient lost 7 kg. of weight. He became rude and unrestrained both at work and at home. A wreck which could have been fatal to the crew of the plane occurred through the fault of the patient in 1926. After this case, K. decided to consult a physician.

A medical commission prescribed psychotherapy. Diagnosis: neurasthenia. A session of reassuring and encouraging suggestion in a drowsy state with the subsequent suggested hypnotic rest for a period of one hour was conducted. This restored the sense of well-being and fast nocturnal sleep. Six more sessions of suggestion during suggested sleep with one-hour sessions of suggested hypnotic rest, were subsequently conducted. The following suggestion was made: "You have regained your former peace of mind and self-confidence; you can control yourself as well as you did before; you can concentrate very well and excellently fill your assignments. You can ensure the welfare of your family; your family and your work no longer interfere with one another." The treatments restored to the patient his former well-being, his strength and self-confidence. "Neither my friends nor the members of my family know me any more," the patient said. Under our observation for the subsequent five years he was well and successfully continued his strenuous work of a test pilot.

As we see, in this case the protracted overstrain of the mobility of the basic cortical processes resulted in a derangement of the inhibitory process. By verbal suggestions of corresponding content made during suggested sleep and by the subsequent sessions of prolonged suggested rest, this condition was fully relieved.

2. Patient K., 49 years old, came to us complaining of a peculiar and extremely tormenting state in which he invariably found himself if he suddenly discovered the presence of some stranger while he was lecturing. He immediately developed palpitation, broke out in a sweat, felt embarrassed, his thoughts became confused and he began to muff the material of the lecture he knew so well, and was sometimes "forced to discontinue it long before the bell."

The patient observed he had always been extremely impressionable and restless. He pointed out that after taking sick he also began to feel an "overwhelming panic fear," which usually gripped him two weeks before the first lecture of each new academic year. Owing to this he lost his appetite and sleep, had attacks of palpitation, and was tormented by the thought that the forthcoming lecture would have to be delivered by him to an unknown new audience. And, while he was confident of his ability to lecture (he had been lecturing in higher educational establishments for 19 years), he was afraid to face a new audience. He did not feel that way during the subsequent lectures; his fear and anxiety rapidly faded and disappeared after the first lecture and he continued his lectures with absolute confidence.

The patient asked us to rid him of these "extremely unpleasant and tormenting states" because they were growing worse with each passing year and were "forcing him to give up his teaching."

According to the patient, he took sick in 1946 after experiencing extremely strong excitement one day when he suddenly discerned among his students three unknown persons who were actively taking notes. This had upset him very much. He knew that a certifying commission was working at the institute. Extreme anxiety and nervousness immediately disconcerted him. He continued his lecture, but at the same time racked his brains trying to recall whether "he had not said anything he should not have said." And when turning towards the blackboard for a brief moment he took a piece of chalk and tried rapidly to recall all he had said at this lecture, he suddenly felt a slight dizziness, "broke out in a sweat," his thoughts "began to scatter," and he had all he could do to go on with the lecture. During a recess between his lectures, he was absent-minded and "tormented by the thought as to what they had written down."

After a consultation, which disclosed to the patient the mechanism of his functional disturbance and strengthened in him the faith in the success of the forthcoming hypnosuggestive treatments, six sessions of psychotherapy were conducted, the first two in a drowsy state, and the subsequent ones during suggested sleep. It was suggested to the patient that he keep his equanimity, that he be completely indifferent to all his experiences at the lectures and that he have self-confidence in all his lectures conducted in the presence of outsiders. This fully restored the patient's former self-control, his faith in his abilities and removed all of the symptoms which had disturbed him. A positive catamnesis during the subsequent 4 years (observation by Y. Katkov).

As we see, in this case two strongly competing excitatory processes arose at the same time in a person, apparently, belonging to the strong variant of the weak general type of nervous system; one of these processes was conditioned by the suddenly emerging persistent and tormenting thought: "What have they written down?", while the other process was connected with the necessity to continue the lecture. This created the conditions for an acute overstrain of the mobility of the basic cortical processes mainly in the sphere of the second signal activity. The clash of both dominant processes, each of which set up a zone of negative induction impeding the development of the other process, in the long run, led to the derangement of the higher nervous activity.

The directed therapeutic verbal influence changed the attitude of the patient to the situation which had traumatized his mind, and the unfavourable results of the acute overstrain of the mobility of his nervous processes were removed.

Furthermore, we can observe the possibility for eliminating the pathological inertia, both of the excitatory and inhibitory processes by corresponding verbal influence. The inertia of cortical processes also results, as is well known, from an overstrain of their mobility. Cases of pathological inertia of the inhibitory process are observed, for example, in the development of certain phobias (morbid fears).

3. Patient F., 21 years old, came to us with a complaint of fearing altitude; he had developed this fear two years previously after climbing to

the sixth floor and looking down the stairway. He had immediately experienced an overwhelming desire to throw himself down the staircase. This terrible thought gave rise to palpitation, and he broke out in a sweat. He descended the stairs still experiencing this fear. Since then he was also afraid to cross bridges: he similarly "wanted to jump off the bridge."

He observed that he had been nervous and timid since childhood. At the age of 7 he was afraid to sleep alone in bed; as he grew older, he was afraid of contracting various diseases and suffered from other obsessive ideas, mainly of a hypochondriacal nature, as well as lassitude and generally low vitality.

Psychotherapy was administered in a drowsy state and yielded a positive effect. But two years later, when the patient had to cross a bridge over a river, his fear recurred. After several explanatory interviews and imperatively made suggestions on a conscious level, the patient was told to train his nervous system by more frequently crossing bridges and climbing stairs. After that, the entire complex of phobias disappeared, efficiency was restored and the patient was successfully graduated from a technical school.

In this case, the pathological inertia of the inhibitory process was removed by means of verbal influence. Thus we see that verbal influence helped to change the attitude of the patients to the situation which had in the past evoked in them an acute overstrain of the mobility. All this signifies that by verbal influence it is also possible to change, within certain limits, the mobility of the basic cortical processes constituting, as we know, one of the three important parameters of the type of nervous system.

CHAPTER X

CORTICAL PATTERNS

> The cerebral hemispheres are continuously acted upon by innumerable stimulations of different quality and intensity both from the outer world and from the internal environment of the organism .... They all meet, collide, interact and must, finally, be systematized .... In the final analysis we have a dynamic pattern, i.e., an organized, balanced system of internal processes.
>
> *I. Pavlov*

We shall now consider a very wide circle of phenomena connected with the formation of cortical dynamic patterns.

In the cerebral cortex, during its day-to-day activity, there is a continuous systematization of processes expressing itself in a certain distribution of the excitatory and inhibitory states, which during a monotonously recurring situation are fixed and take place with ever greater ease and ever more automatically. Thus, a dynamic pattern is produced, and its maintenance requires an ever lesser expenditure of nervous effort. The pattern becomes inert, frequently hard to change, and hard to overcome by a new situation and new stimulations.

Imprinting life's experience, the cortical dynamic patterns in time usually manifest an inclination for firm fixation by virtue of which they are retained for a very long time. Forming in the ontogenesis, by daily equilibration of the organism with the environment, these patterns represent in certain measure the basis of human personality, usually very stable in form and dynamic in content.

We should also like to know whether it is possible by verbal influence in the waking state or during hypnotic sleep to remove the effects of a break-up of the dynamic pattern, to change its character if it no longer corresponds to the external conditions and, lastly, to help in forming a new dynamic pattern in accordance with the new conditions of life.

An answer to these questions is undoubtedly not only of great theoretical interest, but also of considerable importance to therapeutic medicine.

Thus, if the dynamic pattern, i.e., the "organized balanced system of internal processes," is well fixed, its removal and the elaboration of a new

pattern represents for the nervous system a difficult task which leads to a complete temporary cessation of conditioned reflex activity. Pavlov's experiments on dogs showed that the task is so difficult that only a strong nervous type was able to endure it.

Can a physician's "suggestive word" in the form of psychotherapy of corresponding content come to the aid of the patient in such cases?

The following examples taken from our dispensary and clinical psychotherapeutic practice may give the answers to this question. We shall begin with an illustration of removing the effects of the break-up of the dynamic pattern by suggestion.

1. Patient Z., 62 years old, complained he was afraid to come out on the stage lest he forget his lines; he had developed this fear 3 years previously. He had really forgotten his lines several times while on the stage, which gave rise to a lack of self-confidence accompanied by "internal tremor" and an obsessive idea, during his performance, that he was about to forget his lines again. It all occurred only at definite moments during the second and fourth scenes of the same play and in the role which he had theretofore played 650 times with invariable success, without any forgetfulness or excitement. In the beginning, according to the patient, it had all occurred as follows: "I suddenly forgot my lines and was unable to recall them. After the last cue my mind was a complete blank." Now it is somewhat different: "I am forgetting my lines, but I can now find my own words to fill the gap." But on the day of the performance, the fear that he may forget his lines starts in the morning.

The patient sees the reason for the emergence of these phenomena in the experiences he had in connection with the way he played his part on the stage. The management of the theatre demanded that he give a new interpretation of the character he played. The forced admission of his error proved a violent shock to him. It therefore required considerable effort to change the interpretation. That was when he began to forget the lines he had to interpret anew. The first time he forgot his lines he was very much excited and embarrassed; already on the stage he "felt a shock, a wave of heat rising to his head, and he broke out in a sweat." While he played the same part during the three subsequent days he "forgot exactly the same lines." Later, this phenomenon did not emerge in every performance. But in the past year it began to recur with particular frequence which forced the patient to apply to a physician. Six sessions of motivated suggestion in a drowsy state were conducted in the dispensary. The effect was positive: the lack of self-confidence and the obsessive ideas disappeared, and the patient now played his part without forgetting the lines.

I. Pavlov observed that the inclusion of new stimuli, especially "at once and in a large number" or the transposition of many old stimuli "is a big nervous process, an effort beyond the strength of many nervous systems, ending in bankruptcy of the system and expressing itself in an inability to function normally for some time," whereas "variations within established limits of this system are a relatively easy matter."[1]

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 318.

The foregoing example is a case of precisely such "bankruptcy of the nervous system" which resulted from the break-up of the old dynamic pattern. It will be remembered that the patient performed this role about 650 times before its break-up, i.e., the pattern had been extraordinarily firmly fixed.

2. Patient S., 28 years old, complained of depression, frequent faints, sometimes reactive convulsive fits with loss of consciousness, sleep disturbance, loss of efficiency and interest in life, tearfulness. She had formerly considered herself quite well, was efficient, well-balanced and was noted for her strong character. She had no hereditary pathology. She had headed a large group of book-keepers in a big concern for several years.

She had taken sick six months previously after the sudden tragic death of her husband, with whom she had lived for 8 years and whom, in her own words, "she loved to distraction." She had had hallucinations for a period of six months: while alone in the room she had seen her husband, heard his voice and talked to his portrait. Hypnagogic hallucinations of the same content, she continued to dream of her husband. All this was sometimes accompanied by hysterical sobbing and ended in convulsive fits with loss of consciousness.

A two months' stay in a sanatorium and the treatments, including a course of electrotherapy, had brought no relief. The hallucinations continued; she continued talking to the portrait of her husband and suffering from insomnia. Diagnosis: reactive hysteroid neurosis.

Psychotherapy was subsequently administered. The patient proved very suggestible; eight sessions of psychotherapy during suggested sleep with subsequent one-hour sessions of suggested rest during suggested sleep were conducted in the course of three weeks under dispensary conditions. The pathological symptoms grew weaker after each session and completely disappeared after the fifth session. Three additional sessions were conducted, nevertheless; after these the patient began to feel good and started working, whereas she had been on the invalid list since the day of her husband's death.

Four years later she informed us that she continued feeling good, was quite well-balanced, worked (as a book-keeper in a pay office), heading a group of book-keepers again, was able to control herself and observed that her "will had grown stronger." In another five years she came to the dispensary and told us she was "completely well" and had "staunchly endured the hardships of the wartime." As we see, in this case a person undoubtedly belonging to a strong and well-balanced type of nervous system suffered a collapse of a firmly fixed dynamic pattern, brought about by the sudden loss of someone near and dear.

It was precisely such cases that I. Pavlov had in mind when he said: "... It seems to me that frequently oppressive feelings due to a change in the usual mode of life, to discontinuance of customary occupations, to a loss of loved ones, not to mention mental crises and loss of faith, have their physiological basis to a large extent precisely in the change, the disturbance of the old dynamic pattern and in a difficulty of establishing a

new one."[1] In another place he observes that "... various hysterical reactions must also be encountered as general physiological reactions in more or less strong types during extremely strong stimulations, during extraordinary adversities ...."[2]

In this case psychotherapy (eight sessions in a state of suggested sleep with subsequent one-hour sessions of suggested rest during suggested sleep) with a suggestion that the patient "forget" the experiences she had after her loss and that she take her loss calmly removed the results of the collapse of the former pattern and created the conditions for a normal attitude to new conditions of life and for elaboration of new dynamic patterns.

Thus, a mode of life which has formed and fixed itself, i.e., has become habitual, becomes so firmly fixed in the course of time that it is infrequently very hard for a person to change it. Because of this, a situation may arise in which corresponding psychotherapeutic aid is required. The examples cited below show to what extent verbal suggestion can help in removing such a fixed "unremovable" dynamic pattern.

1. Patient S., 27 years old, complained about loss of interest in life, a state of anxiety, melancholy, loss of appetite and sleep disturbance. The reason for this was that for a number of weeks she had noticed that the person whom she had loved very much and with whom, in her own words, "her life for two years had been like that of two doves," had begun growing cold to her. The deep love and strong attachment she had retained made her suffer very much. She had decided to break up with him out of pride anyway, while "her mind was dictating one thing and her heart another." Because of this, her neurotic state grew worse and she applied for help to a physician.

After telling us about her condition, she admitted that she came to us "with very little hope of getting relief; it seemed impossible to have done with the strong feeling of attachment and love which had ruled me for a period of about two years." She described the first session of psychotherapy conducted by us in a drowsy state as follows: "I did not sleep, but felt some sort of pleasant heaviness throughout my body. My eyelids, arms and legs had grown heavy, but my mind worked and I heard everything that was suggested to me." When she came for the second session the following day, however, she stated that to her surprise "she felt calmer and quite relieved"; at night she had slept well and though she had thought of him, the thoughts did not upset her and "it was the first time she did not have to force herself to eat in the morning."

During the second session, the patient similarly "experienced a peace of mind and bodily rest"; this state was retained all day long following the session, the patient remaining calm even when she met him several times at work. There were no more obsessive thoughts of the past. Two more sessions were conducted several days later; during the third session the patient experienced the same state of pleasant rest, and after the fourth

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 399.

[2] *Ibid.*, p. 383.

session she told us that despite meeting him at work daily, she was "no longer excited" while in his absence "she never even thought of him."

Then the following episode occurred: she was put to work in the same room with him. Much to her surprise she did not react in any way. "I've been working with him for 3 days in the same room as calmly as if I never loved him."

The fifth and last session was conducted a week later. Taking leave of us, the patient said "she was no longer troubled, was completely efficient and self-confident," and that these five sessions had given her what she wanted (observation by I. Murakhovskaya).

2. Patient S., 31 years old, came accompanied by her husband; she complains of an anxious and depressed state, fear of staying at home alone and a lack of interest in the surroundings. She has become nervous and is afraid she may die at night from paralysis of the heart ("she may fall asleep and never awaken"). The fear of death subsequently was replaced by fear of blindness; she "has felt a pressure in the region of the eyes."

In the last three months she has been afraid of losing her mind because she has felt a pressure in the top of the head. She sleeps badly and has no appetite. In the last 5 months she has lost 15 kg. (before her ailment she weighed 92 kg.). She believes she took sick nine months ago when she moved with her family from the town in which she had been born and had lived all her life to another town (in connection with the transfer of her husband). She thought the change of residence to have been a "great and complex event which had broken her life." In the last nine months she has been unable to reconcile herself to her life in the new place and with the change in the living conditions which she could not accept. Before her ailment (as told by herself and her husband) she was quite well, active, alert, and cheerful. No hereditary pathology.

Several sessions of verbal suggestion were conducted (the first session in the waking state, the last—in a state of hypnotic sleep), as a result of which the entire complex pathological syndrome was fully eliminated; the new residence no longer seemed "unpleasant" and "alien" to her; she began to settle down and forgot all her fears. Positive catamnesis continued for two years.

Thus in this case, too, there was a picture of a firmly fixed dynamic pattern connected with the customary life's situation, and the patient's nervous system characterized by inertia of nervous processes could not alone free itself of the results of the change. This provoked a complex neurotic pathological syndrome.

Observing that under definite conditions the cortical pattern acquires considerable stability, I. Pavlov cited a case in which a student discovering that his chosen speciality did not correspond to his life's interests, fell into a state of deep melancholy, including persistent attempts at suicide. He was helped out of this state by the vigorous action of two of his friends who actually forced him to change his speciality, after which his spirits began to rise noticeably and he finally became normal. Finding the object of his quests in this new speciality, he was subsequently normal as long as he lived, according to I. Pavlov's testimony.

D. Gastev (Leningrad Pavlov Clinic of Neuroses, 1938) cites several cases in which rational psychotherapy in the form of explanations of the

essence of the experienced phenomena made to the patients in the waking state was successful. The ailments had been provoked by the incompatibility between the changed environment and the patient's cortical dynamic pattern.

We can thus form the conclusion, on the basis of the foregoing, that in neurotic ailments conditioned by disturbance in the cortical dynamic pattern psychotherapy is of essential importance. It can be administered on the conscious level (observations by D. Gastev) or in the form of suggestive therapy during suggested sleep. Experience shows that the latter is necessary when psychotherapy produces no effect in the waking state.

It will be observed that in our cases verbal suggestion proved pathogenetically quite correct: it removed pathologically firmly fixed dynamic patterns which had lost their social significance and thus made it possible for new cortical dynamic structures to form.

CHAPTER XI

TRACE PROCESSES IN THE CEREBRAL CORTEX

> That our investigation of the higher nervous activity is proceeding along a correct path, that we accurately ascertain the phenomena which constitute it, and that we correctly analyse this mechanism, is most vividly proved by the fact that in many cases we can now functionally reproduce with great precision its chronically pathological states and at the same time restore it to normal at will.
>
> *I. Pavlov*

By carrying out analytical and synthetic activity the cerebral cortex fixes the temporary succession of all the processes occurring in it and retains the possibility of subsequently reproducing them under corresponding conditions. It is well known that precisely this underlies the function of memory, i.e., the processes of memorizing and recalling all that occurred in the past in its direct succession and connection.

This property of the cerebral cortex testifies to the fact that the entire nervous activity is permeated with the principle of *historicity* which is the basic characteristic feature of the entire Pavlovian reflex theory.

K. Bykov (1947) notes that the "fixation of the succession of events by the cerebral cortex is of tremendous importance to the life of the organism because it enables it under definite conditions to *reproduce* the chain of events which occurred in the past." (Emphasis by the author.)

By means of verbal influence used during suggested sleep this way of reproducing the elements of past experience of the cerebral cortex proves quite feasible.

All those who are familiar with the literature on hypnosis and suggestion know that to a suggestible human adult who is in a state of suggested sleep it is enough to make a suggestion consisting of only eight words: "You are now 6 years old, wake up," in order that he may, upon awakening, reproduce in greatest detail all the characteristics specific of the suggested age. The changes spread over all aspects of the higher nervous activity relating to the circle of concepts, emotions, attitude to

the surroundings, the intonation of his voice, the character of sleep, handwriting, drawings, and other manifestations of behaviour.

It is quite natural that when these phenomena were observed the question always arose: what is this reproduction, is it real or artificial?

We see the proof of the possibility of reviving man's past experience at different ages and in all detail in the basic laws governing the physiology of the higher nervous activity. According to Pavlov's teachings, the cerebral cortex represents a mosaic picture of excited and inhibited sections, dynamic structures which are in a state of greater or lesser readiness for activity. Under these conditions any stimulation of the cortex combining with the traces of former stimulations may revive the enormous complex of chain reflexes with which it was somehow connected in the past. It is precisely the verbal stimulus which may be particularly active in this respect and which can call to life the most diverse and complicated reactions. As is well known and has been empirically proved, one word not infrequently brings to mind very many memories.

On the basis of these considerations and of experimental data, we can assert that by suggesting a past age we can really reproduce the former dynamic structure relating to a corresponding earlier period of life. This is likely to occur most easily precisely under conditions of suggested sleep, with one limited wakeful section (rapport zone) remaining uninhibited. Under these conditions we have the chance for *directing* the activity of the cerebral cortex by reviving in it the dynamic structures we need.

Several investigations were conducted by us in this direction (K. Platonov and Y. Prikhodivny) in 1930. Our task included the elucidation of the physiological mechanisms, underlying these phenomena, in the light of Pavlov's teachings. Analogous studies, but with a deeper analysis, were conducted somewhat later by A. Dolin (1933) and by F. Maiorov and M. Suslova (1947, 1951). A. Ivanov-Smolensky observes (1952) that by suggestion which brings man back to certain age levels of his life we study "the individual experience of the personality imprinted on the cerebral cortex."

These studies indicate that it is easier to reproduce the subject's recent age states and harder to reproduce the ones belonging to a more distant period of his life. Thus, many investigations testify to the restoration of integral cortical dynamic structures relating to individual ages with all their specific properties.

It will be noted that a suggestion in the form: "You are so many years old" is methodically incorrect. In this way, cortical activity may be easily severed from reality (which, as is well known, inevitably results in cases when the as yet inexperienced age is suggested, for example, when a 20-year-old is told that he is 40 years old). In such studies we therefore prefer to call not the age, but a concrete date relating to some experiences or other connected with the subject's past. This method aids in directing the subject's cortical activity on to a path of reproducing the past dynamic structures and presents the development of conditioned reflex activity by the elementary mechanisms of imitation.

There is no doubt that the state of suggested sleep during which a sufficiently deep division of the cerebral cortex into sections of sleep and

wakefulness is produced really *facilitates reproduction of the traces of the past* directed by corresponding verbal suggestion. It is this, according to F. Maiorov and M. Suslova, that forms the nervous mechanism of the so-called reincarnation under hypnosis.

The observations of patients conducted by us and a number of other authors, including a suggestion of the different age states experienced by them, helped us, for the first time in 1925 to study the possibility of reproducing past pathological syndromes in one of our patients. It will be observed that we proceed from the assumption of the dynamic nature of neuroses and of the hysterical phenomena proper. We shall now consider our observations.

1. Patient S., 35 years old, suffered from "commanding" fits accompanied by loss of consciousness and stable right-sided hyperkinesis which developed and became fixed after severe shell-shock. The hyperkinesis expressed itself in the form of rhythmic, clonic, convulsive jerks of the right extremities (upper and lower) with more pronounced contractions of the muscles of the face and of the right arm, which continued for a period of 4 years. The patient proved very suggestible, and it was possible very rapidly to rid him of these pathological states.

Several months later, when he was already quite well, we tested the state of the compensatory ability of the cerebral cortex and checked on the stability of the effects of psychotherapy produced on him. By corresponding suggestion during suggested sleep we "carried him back" to the past years of his life. The suggestion of childhood was effectuated very well. Transferring him thus from year to year, we reached the period of his morbid state. A picture of the past pathological syndrome with clearly pronounced hyperkinesis, corresponding mimics, general external appearance and total behaviour was reproduced, and the former patient was before us again.

Subsequently, by provoking this reproduced pathological state by indirect suggestion, we convinced ourselves that its duration could differ from a few minutes to several hours. We always succeeded in ascertaining the presence of all the former pathological symptoms, including the one-sided absence of all types of superficial and deep sensitivity. With the removal of this state (by a corresponding contrary suggestion during suggested sleep) the entire syndrome disappeared without affecting the patient as he came out of the hypnosis.

Later, we conducted one more observation during a chance meeting with him nine years after his recovery; after inducing a hypnoid state we suggested to him: *"Today is the day when you first came to us, wake up,"* and the entire pathological syndrome reappeared upon awakening. Similarly, by a corresponding verbal suggestion of a contrary purport, we again removed the entire syndrome.

It will be emphasized that we reproduced the pathological symptom complex in all cases not by direct suggestion, but by *indirect* means, by mentioning the date when the disease had started.

We decided to conduct similar observations of another patient of ours, the history of whose disease is cited below. A somnambulistic phase was observed in him under hypnosis. He rapidly fell asleep after a single

verbal command: "Sleep," and during suggested sleep reacted in a very lively maner to the suggestions of corresponding content. It was also very easy to reproduce his childhood age level and a reaction of the muscular tone of the stomach to suggested emotions.

2. Patient R., 37 years old, came to us on December 12, 1929, in a state of high irritability; he was affective, rude and aggressive on the slightest pretext and demanded immediate reception. He walked leaning on a cane, his walk being of a cerebellar-ataxic type. During the first days in the hospital he was in a dejected mood, melancholic, silent, paid no attention to the people around him, walked about with downcast wandering eyes, grinding his teeth and jerking the muscles of the right side of his face, neck and shoulder. He wouldn't have anything to do with the other patients. The slightest sound or noise caused him to start, made him generally irritable, and produced crying spells which changed into sobbing. Complained of severe anxiety and melancholy. He was inaccessible to examination and began trembling at the slightest touch. He did not answer any questions or answered them rudely asking to be "left alone" because he "felt bad enough as it was."

It was impossible to make a physical examination; attempts to study his reflexes and pain sensitivity evoked a number of general motor defensive reactions with the expression of fear on the face and tears in his eyes. If we managed to strike his knee with a plexor or make a pinprick, however, it provoked a widespread motor reaction, crying, hyperhydrosis on the face and neck and an accelerated pulse. During the attempt to gather an anamnesis and to learn of his past, the words "wreck," "train," etc., produced tears and convulsive jerks of the facial muscles. He was against physicians and medicine in general because the latter did not help him get well. For a period of the first three or four days he slept badly (from 1 to 2 hours a night) and had visual hallucinations which reproduced the psychic trauma experienced by him in the past. The patient tried to choke himself with a towel; he had short fits of disorientation, thought he was in prison and wanted to leave the hospital. Sometimes losing contact with the surroundings he saw winter landscapes and wanted to go there, but attempts to get up in order to go immediately brought him to. During periods of relative calm, the patient could answer certain questions. It was then possible to obtain desultory information, and he manifested correct orientation in time and space. He complained of the severity of his state, melancholy and suicidal tendencies and asked that the towel, belt, etc., be taken away from him. He believed himself sick and wanted to get well, but observed that "he had been getting worse and worse for some years" (Fig. 58).

Taking into consideration the hysterical character of the entire syndrome, we decided to resort to hypnosuggestive therapy as an auxiliary means of soothing the neuropsychical sphere. It took us but a few minutes to induce sleep by verbal suggestion. Several suggestions of a reassuring character were made and a 15-minute hypnotic rest was given. This session sharply changed the condition of the patient for the better and obviated the question of transferring him to a psychiatric hospital. As his condition improved, it was finally possible to collect information about his past.

In 1918 he had been arrested by the Petluraites and in 1919 was in danger of being executed, after which he developed high irritability. In 1922 he lost his wife and two children, all in one month. In 1923 there was a train wreck at the station where he worked (he had been assistant station-master since 1922); his nervousness increased. In 1924 he witnessed a railway wreck; a clearly pronounced neurasthenic condition developed in 1925, and he was treated in the Sevastopol Institute of Physical Methods of Treatment after which his health was completely restored. In 1926, after a new psychic trauma, irritability and crying spells recurred. He was given a course of hydrotherapy which produced a slight improvement. In 1927 he sustained an injury to the head with loss of consciousness. Irritability and lack of confidence in the subordinates developed. In July of the same year, while the patient was using the telephone, a lightning discharge occurred near by augmenting the neurotic state. He took another month's treatments at the same Institute of Physical Methods of Treatment. The improvement was but slight. In 1928 he frequently suffered from insomnia and lost interest in his work which, until then, he did zealously. Depressed state and fits of melancholy developed. In August he took treatments in the sanatorium of the Sechenov Institute of Physical Methods of Treatment again. He was depressed, constantly cried and kept away from people; everything irritated him. Returned to work in the same condition. His health continued growing worse: in addition to sleep disturbances, he began having hallucinations—the funeral of his wife and children, winter landscapes and wrecks. His health kept getting worse, paranoid elements began to emerge. In August 1929 he sustained an injury to the head and was brought to a hospital in an unconscious state. A convulsive fit with loss of consciousness occurred on March 27; a similar fit occurred during work on September 13 and he hadn't worked since. Hallucinations grew more frequent, the patient developed tremor in his hands and entire body, and instability; could walk only with a cane and had a constant feeling that the ground was giving way under his feet. Anxiety, thoughts of suicide, profuse perspiration and frequent desires to urinate. Has lost all self-control and become irritable to the point of aggressiveness. Was put on the invalid list. His irritability was maintained by a belief that medical aid was useless.

Six sessions of psychotherapy were subsequently conducted. The patient's health was restored with each passing day, and within a month, January 20, 1930, he was discharged for work. Fig. 58 is a diagram of the development of his ailment.

The given patient had a serious, progressively developing neurosis of a hysterical type with a polymorphic psychotic and neurotic syndrome.

A year later, February 20, 1931, when R. happened to come to our city on business, we wanted to know if it was possible to reproduce in him traces of the past pathological state. Taking into consideration our former observations relating to reproduction of the past age levels and our former studies of patient S., we were warranted in expecting success also in this case.

Getting the consent of R. to do this and inducing a state of suggested sleep, we issued only the following verbal instruction: "*Today is December*

20, 1929 (the date he had been brought to the hospital), *wake up!*" During the interview with him we consciously avoided all mention of his past pathological symptoms. R. woke up and we really beheld the former patient: his face expressed anxiety and dejection, he looked about terror-stricken, answered questions unwillingly, and was irritated. Attempts to investigate sensitivity and reflexes provoked the familiar motor reaction, grinding of teeth and the same facial twitching (Fig. 59). Pulse accelerated, face covered with sweat, tears in his eyes. Quieted down after the attempts to examine him were discontinued. When requested to get up and go to

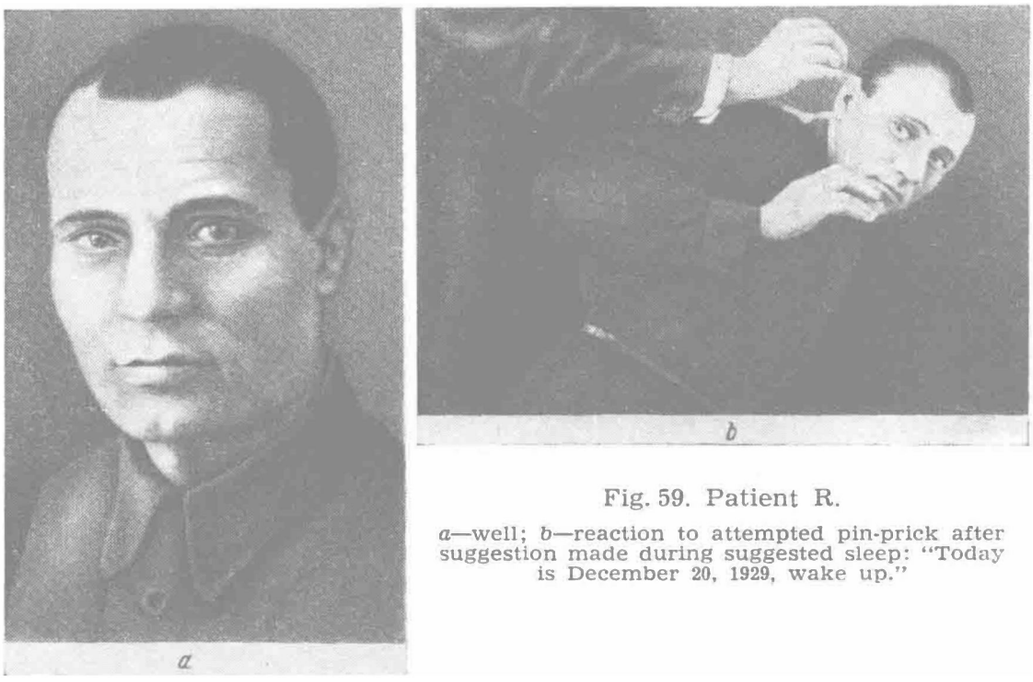

Fig. 59. Patient R.

a—well; *b*—reaction to attempted pin-prick after suggestion made during suggested sleep: "Today is December 20, 1929, wake up."

the ward he began to look around for his cane, without which he was unable to walk. When an attempt to question him about the reasons for his ailment and to remind him of trains and wrecks was made he first answered irritably and incoherently, then grew more and more irritable and finally broke out sobbing. By a verbal instruction: "Sleep," he was rapidly put to sleep, after which a contrary suggestion was made: "It is February 20, 1931. Wake up!" Woke up feeling well and did not remember the content of the session.

To make sure there was no intentional imitation, we asked him deliberately to demonstrate in the waking state the pathological symptoms he had on corresponding days. He was unable to do it, nor could he reproduce his teeth grinding upon our request.

Then we wanted to know R.'s state in 1928 when he was at the hospital of the Sechenov Institute in an anxious and dejected state. We induced sleep and made the following verbal suggestion: "It is now 1928 and you are at the Sechenov Institute, wake up!" He woke up, his posture and the expression of his face reflecting his dejected state: a sad and pensive martyr's facial expression, and motionless attitude. He began to wring his hands and sigh deeply, with tears streaming down his face. To our question:

"What's the trouble, why so sad?" he answered: "Oh, it's bad," and broke out in sobs (Fig. 60, *a* and *b*).

Physician B. (from the Sechenov Institute who observed R. in 1928), who chanced to be present at one of the sessions, confirmed the similarity of the patient's state. Changes in R.'s behaviour also occurred after the verbal instruction: "It is 1927, wake up!" (that year the patient constantly suspected and mistrusted his co-workers and subordinates). The manner of speech and mimical reactions reflected this "paranoid" state. Similar observations were made in December 1933.

The pictures of these states could be reproduced repetitively; we demonstrated them at conferences of physicians of the Ukrainian Psychoneurological Institute and at the Central Polyclinic of the Ministry of

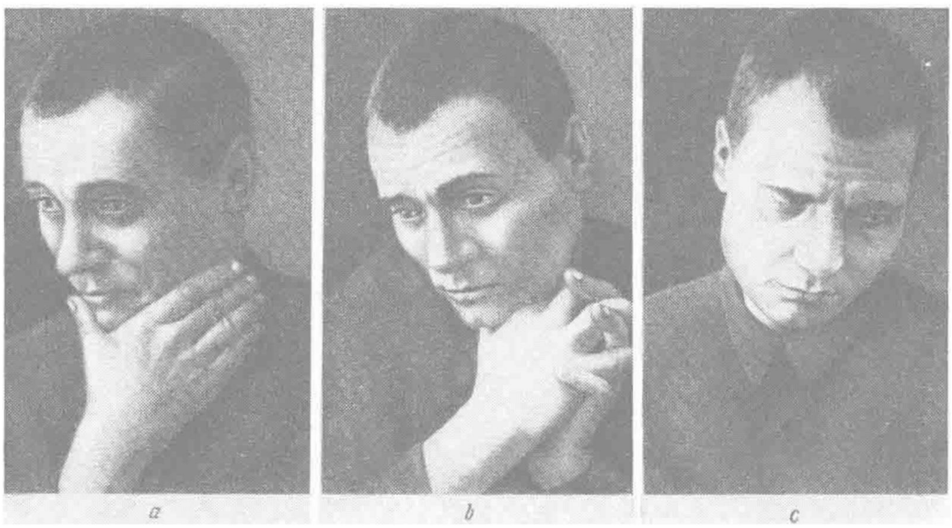

Fig. 60. Patient R. during suggested sleep.

a and *b*—picture of depression after verbal suggestion: "It is now 1928 and you are at the Sechenov Institute, wake up"; *c*—after verbal suggestion: "It is 1927, wake up." Face expresses suspicious attitude.

Public Health. It will be observed that, like the first time, these reproductions in no way affected the state of R.'s health and did not interfere with his strenuous work on the line. R. suffered no relapses despite the fact that he went through a flood, a trolley wreck and a fall with an injury to his head (during a trip to investigate the reasons for a train wreck).

Thus, the effect of reproducing, during suggested sleep, the pathological state experienced in the past which we observed in two patients, showed it was really possible deliberately to reproduce and remove the complex pathological symptoms.

But were the formerly experienced pathological neurotic states really reproduced in these cases?

To be sure, as I. Pavlov says, "... there are so many various cases of morbid nervous states when people keep more or less normally active only until they are affected by components, very insignificant as they may be, even in the form of verbal allusions, of the strong and complex

stimuli which originally determined the nervous ailment."[1] In our cases, these very insignificant allusions pertained only to the "dates" of admission to the hospital.

The vegetative reactions accompanying this state may serve as proof that in this case there could have been an actual reproduction of the past pathological state.

We shall add to the above that as early as 1924 we showed, jointly with our assistant P. Istomin (Propaedeutic Nervous Clinic of the Kharkov Medical Institute), the possibility of reproducing epileptic fits by means of corresponding suggestion during suggested sleep for diagnostic purposes.

3. Patient M., 30 years old, applied to the clinic of nervous diseases with complaints of fits accompanied by loss of consciousness, convulsions, tongue-biting and subsequent sleep. The fits had begun at the age of 5 after a bad fright and injuries to the head inflicted with stones. Was exempt from military service. The fits occurred regularly twice a month.

The patient proved very suggestible. One of the aforementioned fits was provoked for diagnostic purposes by a suggestion made to the patient during suggested sleep in the laboratory of the clinic in the presence of his wife. For this it was enough to make a verbal suggestion of the aura; a fit developed immediately, beginning with a scream, paling and then cyanosis of the face, tonic and clonic convulsions and an absence of pupillary reaction to light. It was discontinued by a suggestion of a contrary nature. According to the patient's wife, the fit was very much like his usual fits.

The possibility of emergence of epileptic fits according to the conditioned reflex mechanism is also confirmed by V. Bekhterev's observations (1922): "... Sometimes even the emergence of the fits resembles that of a combinative reflex."

M. Nikitin (1934) mentions a certain opera singer who developed epileptic fits according to the mechanism of temporary bonds (rendition of a certain operatic aria under strong emotional stress).

In the light of I. Pavlov's teachings, these facts thus receive their proper explanation. The experimental studies of conditioned reflex camphor epilepsy in animals conducted by A. Dolin (1938, 1948) warrant the assumption that it is possible to produce by verbal suggestion during suggested sleep not only hysterical syndromes, but also more complex pathological states, such as the epileptic fit in man.

Reproduction of past skin diseases by suggestion were described in the field of dermatology by A. Kartamyshev (1942). By this means he was able both to prevent the emergence of dermatosis and to provoke similar dermatosis with all the concomitant phenomena (of a somewhat lesser force) during a post-hypnotic moment assigned beforehand.

Mention should be made of the interesting observations of P. Bulatov and P. Bul (1953) which showed the possibility of reproducing bronchial asthma by suggestion. In addition, M. Linetsky reproduced malarial syndromes in our laboratory by verbal suggestion. Recently, A. Gorba-

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[1] I. Pavlov, *Lectures on the Work of the Cerebral Hemispheres*, 1927, p. 351.

tsevich (1955) produced by suggestion during hypnotic sleep convulsive fits in epileptic patients with concomitant shifts in the electric activity of the cerebral cortex.

In all aforementioned cases the stimuli, which provoked to life trace processes retained in the higher divisions of the central nervous system from past pathological states, were verbal suggestions of corresponding content.

Thus, the data cited by us warrant the assertion that the phenomena under consideration are based on a real, actual reproduction of the processes and states which occurred in the subjects' higher divisions of the cerebral cortex in the past. This confirms the correctness of the ideas of the Pavlovian school to the effect that the *traces of past experiences* are in a certain measure *indelible*. It follows that the methods of *psychocatharsis* (during which the patient is forced keenly to relive the experiences which had traumatized him in the past) and of *hypnoanalysis* (reviving in the memory of the patient, who is in a state of suggested sleep, the factors which had traumatized his mind in the past), frequently utilized by psychotherapists for diagnostic and therapeutic purposes, have a real basis in fact.

Thus, the entire symptom complex of the pathological process experienced in the past can be reproduced after a clinical cure. After the cure, the nervous system retains in the form of traces the dynamic pattern which had formed during the ailment.

That is why in certain cases we used this method of reviving the trace processes for diagnostic purposes as one of the methods of ascertaining the peculiarities of the pathological process which arose in the patient and of establishing certain concomitant or connected pathogenetic moments. This can be illustrated by the following example.

Patient B., 17 years old, applied to the Propaedeutic Clinic of Nervous Diseases of the Kharkov Medical Institute in 1924 with a complaint of stuttering which he had developed at the age of 5. However, neither he nor his mother knew what had caused this ailment to develop. By inducing a state of suggested sleep, we suggested to the patient that he was 5 years old. While in this state he easily recalled and described in detail the fright he had experienced at that age: a little paper lantern caught fire during an illumination in their garden; this gave him a strong emotional experience and served as the direct cause of his stuttering.

M. Suslova's observation (1952) deserves special mention. When a patient was told under hypnosis that she was then 30 years old she began to complain of nausea and a splitting headache, stating that "she was hit hard by something," but "could not make out what it was." When questioned after awakening she related that at the age of 30 the train she was riding while at the front (1941) was bombed. The patient was shell-shocked and lost consciousness. When she came to, she had a headache and nausea.

Thus, we see also in this example that the reproduction of the situation experienced in the past may lead to a revival of trace reactions corresponding to these past events of which the most vivid one for this patient was the moment she was shell-shocked at the given period of her life.

These examples indicate that this method of study is of great diagnostic value.

Last but not least, we face the lawful question of how harmless reproducing the past pathological states in former patients may be. Our observations have shown that the repetition of such studies conducted both during the first year after the cure (first patient), and subsequently, in no way affected the state of our patient's health. It did not prevent him from holding responsible positions for a period of 10 years (after 4 years of complete invalidity). The same must be said about another former patient of ours. A pathological state was reproduced in the patient several times without any harm to his health. This testified to the high compensatory capacity characteristic of the nervous system of both patients.

A. Pshonik (1950) indicates in his monograph that the reproduction of the picture of the neurotic state produces no harmful aftereffects.

Thus, our observations give us no reasons to think that reproduction of the trace processes of the pathological state is in any way harmful. The pathological syndrome did not recur in any of the three of our patients even after the new psychic trauma subsequently sustained by them.

CHAPTER XII

ISOLATED TRIGGER POINTS IN THE CEREBRAL CORTEX

> ... We have sufficient reasons to believe that various pathogenic causes of a functional character may give rise to *sharply isolated pathological points or regions* in the cerebral cortex.
>
> *I. Pavlov*

Observing that all our life is "a continuous struggle, a conflict of our basic aspirations, desires and tastes with the general natural and special social conditions," I. Pavlov said that all these reasons could, under certain conditions, "concentrate the pathological inertia of the excitatory process in various sections of the cerebral cortex—now in the cells directly receiving the stimulations both from the external and internal agents (the first signal system of reality), now in different cells (kinaesthetic, auditory and visual) of the verbal system (second signal system) with different degrees of intensity in both sections: sometimes on the level of ideas and at other times by raising the intensity to the force of real sensations (hallucinations)."[1]

According to I. Pavlov's teachings, even small individual points of the cerebral cortex can easily be made sick. The action of adequate stimuli on these points "leads to a rapid and sharp drop in the general conditioned reflex activity."[2]

Our entire polyclinical experience of many years' standing testifies to the fact that verbal action can remove the trigger points of various localization.

1. Patient G., 28 years old, applied to us complaining of a tormenting form of wryneck (*torticollis*) from which she had suffered for 8 years. She had taken sick during a sharp quarrel with her husband when the latter rudely insulted her while her head was turned to the extreme left. Since

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, pp. 410-411.

[2] *Ibid.*, p. 374.

then this position of the head had become fixed and persisted even during sleep. The patient took treatments for 8 years, but to no avail. Her tormenting condition led her to the point of wanting to commit suicide. She had "lost all faith" in medicine and in physicians.

Psychotherapy during suggested sleep was administered. It will be specially observed that as the suggested sleep developed, the wryneck condition gradually weakened and the neck straightened out. After a special suggestion: "You have forgotten your experience and you can very freely turn your head in any direction," the wryneck, which had persisted for a period of 8 years, completely disappeared. When the patient awakened she could move her head in any direction. She had only retained some "feeling of uneasiness" in the region of the neck which was also gone the day after the second session. Thus, by two sessions of hypnosuggestive therapy the patient, who apparently belonged to the strong unbalanced type and particular artistic type of nervous system was fully and finally cured of the aforesaid extremely serious condition that had lasted for 8 years. The patient was demonstrated by us at a sitting of the Dniepropetrovsk Society of Physicians who for 8 years had considered her incurable (1925). The sudden sharp psychic trauma (insulting words) formed a strong focus of excitation in the patient's cerebral cortex. The wave of negative induction caused by it had apparently created the conditions for a pathological isolation of another focus of excitation which was present at that moment in the region of the kinaesthetic analyser in the form of a strong tonic contraction of the left cervical muscle. This gave rise to a trigger point isolated from the remaining regions of the cerebral cortex, firmly fixed and retained for a period of years. Under such conditions a person can no longer do anything with this isolated excitation because it is disconnected from all the other points of excitation.

As we have seen, already the very development of suggested sleep, i.e., the words inducing the trance, and the dissociation of the cerebral cortex into sleeping and waking divisions, led to the removal of the former inert focus of excitation underlying the trigger point. By the suggestions: "Forget your experience" that followed, the effect of the therapy was fixed.

2. Patient P., 15 years old, complained of compulsive winking with spasms of the eyelids which had started at the age of 11 after an air raid (March 1943) and continued uninterruptedly for a period of 4 years. He was awakened in the middle of the night by the sound of an explosion and plaster falling off the ceiling in the room where he was asleep with some of the plaster getting into his eyes. He had been well until then.

He felt very bad about the compulsive spasmodic movements of both eyelids, especially since the autumn of 1947 when he entered a trade school. All his attempts to rid himself of the winking movements only intensified them and they acquired an irresistibly spasmodic character. This made him apply to a psychotherapist. The patient exhibited emotional lability and proved to be suggestible.

A session of verbal suggestion was conducted during suggested sleep after which a sharp improvement was observed; the spasmodic movement of the eyelids was fully removed after two subsequent sessions. It

will be noted that the psychic trauma occurred while the cortex had a low tone conditioned by a transitional (phasic) state (observation by Y. Katkov).

Thus, here too, we have a picture of a locally quite limited "trigger point" of the cerebral cortex, likewise removed by the influence of verbal suggestion during suggested sleep.

3. Patient H., 26 years old, complained of constant timidity, anxiety in the evenings ("as soon as the lights were turned on"), headaches, poor appetite, bad sleep and fear of going out alone in the evening: "Someone is always pursuing me." All these phenomena had emerged two years before after criminals had attacked and beaten her sister while she herself was greatly frightened. She developed headaches, dyssomnia and fear of leaving the house in the evening (she would not go out even with an escort). This continued for a period of two years. Polyclinical treatments (glucose, bromides and caffeine) proved useless.

Six sessions of verbal suggestion were conducted during suggested sleep removing the entire pathological syndrome. Right after the first session she stated: "I am already well" and "feel as though I have grown younger." She was under subsequent observation for 5 years; the catamnesis was positive (observation by Y. Katkov).

An extraordinary stimulation, which had proved too much for the patient's nervous system gave rise to a state of inertia of the excitatory process in a certain zone of her cerebral cortex. It was fixed in her in the form of an isolated "trigger point," the manifestation of which was connected with the time factor. The "trigger point" was fixed in the given case in the region of the visual analyser in a person apparently belonging to the strong variant of the weak general type of nervous system. Due to a strong negative induction, this "trigger point" also became isolated from the influences of the remaining part of the cerebral cortex.

The verbal suggestion: "Your experience has receded into the past and no longer troubles you," made during suggested sleep fully removed this "trigger point."

I. Pavlov said that "if the pathological inertness is obvious and must be accepted as a fact in the motor phenomena, the same is quite admissible and lawful in relation to all the sensations, feelings and ideas."[1]

Excessively stable ideas, feelings and then actions which do not correspond to the proper social relations of man arise according to the mechanism of isolation of the points of the morbid condition from the entire cortex.

4. Patient K., 74 years old, came to the dispensary with complaints of headaches, noises in the head, fear of sharp objects, obsessive ideas and an urge to kill her granddaughter. This state had continued for about 10 days, the headaches and dizziness—about 2 years. The obsessive ideas came without any external reason, and the patient regarded them critically. In the day-time she hid sharp objects, at night she prayed striving to shake off her obsession. Her entire time was taken up with the struggle against

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 408.

these morbid thoughts. Arising from time to time, they became especially strong towards evening, before she went to sleep.

During the examination the patient was very much depressed, uneasy, anxious, and perplexed, due to which the anamnestic information was obtained from her daughter who accompanied her. No psychotic derangements were observed, nor was the heredity pathologic; before her ailment the patient was sociable, active, resourceful and easily surmounted life's difficulties. She loved her granddaughter; the relations in the family were good. We diagnosed her condition as a senile obsessive neurosis. As a result of nine sessions of hypnosuggestive therapy the obsession to "kill her granddaughter," anxiety, uneasiness and perplexity disappeared. The patient became livelier, more mobile and her nocturnal sleep improved. The patient showed a good memory, and critical and intellectual power corresponding to her age and cultural level. She went back to her customary housekeeping and did her work well. Positive catamnesis for one and a half years (observation by A. Sosedkina).

5. Patient B., 56 years old, was brought to us with complaints of a severe form of anxiety, obsessive jealousy of her husband's aunt (made terrible scenes out of jealousy, which sometimes lasted a whole night), and total insomnia. She had taken sick one and a half years previously after a psychic trauma: her husband's aunt (who is 60 years old) once unexpectedly told the patient that her husband sometimes came to visit her. The patient felt deeply hurt, was greatly upset, did not sleep all night long, crying a great deal and reproaching her husband for "hiding from her his relations with his aunt." She had been jealous from that day on.

She had been treated by her district neuropathologist and then a psychiatrist (bromides, glucose and insulin) from the first days of her ailment without any essential improvement. In connection with her perturbed state and suicidal tendencies she was placed in a psychiatric hospital where she stayed for 5 months. Diagnosis: pre-senile climacteric paranoia. In addition to other therapeutic measures in the psychiatric hospital, sleep therapy was administered for a period of one week. She was discharged without any improvement. The scenes of jealousy and persistent insomnia recurred immediately; she had difficulty falling asleep even after taking a double doze of barbamil (hypnotic). Received ambulatory treatment from her district psychiatrist; the treatment consisted of administration of insulin and oxygen. Her status included a light arteriosclerotic syndrome. Her menstruation ceased at the age of 48.

Verbal psychotherapy during suggested sleep was administered after the preliminary consultation and a marked improvement was observed from the very first session: the patient grew quieter, but was still troubled by the thought: "He goes to see her and this hurts." A sharp improvement ensued after the 7th session, when deep sleep was induced: she slept for the first time without the barbital, began to do her housekeeping and to devote some attention to her children. During the month she had a total of 12 sessions with constant improvement. Positive catamnesis for 2 years; she felt good and was doing a lot of housekeeping (observation by Y. Katkov).

The above example shows that physicians do not sufficiently appreciate the psychogenesis of the disease and give a stereotyped interpretation of it as a "pre-senile psychosis"; that is why their pharmacotherapy completely fails. It will be noted that the pharmacotherapeutic sleep also failed to produce any effect, whereas psychotherapy during suggested sleep fully removed the pathological syndrome.

Both latter examples also show a picture of a "trigger point" in the form of inertia of the excitatory process. Isolated from the rest of the cerebral cortex by force of negative induction the "trigger point" manifested itself both in the second signal and subcortical (emotional-instinctive) activity.

In both cases the "trigger point" was removed by means of direct verbal suggestion during suggested sleep aimed at "forgetting the experience."

INFLUENCE OF VERBAL SUGGESTION ON SUBCORTICAL FUNCTIONS

CHAPTER XIII

INTERNAL ENVIRONMENT AND THE ACTIVITY OF INTERNAL ORGANS

> ... By a mechanism which is insufficiently clear as yet, the cerebral hemispheres, because of their exceptional reactivity and lability, make it possible, for the strong, but naturally inert, subcortical centres to react by corresponding activity to extraordinarily weak variations in the environment.
>
> *I. Pavlov*

In dealing with the changes occurring in the state of the organism under the influence of verbal suggestion, we have had ample opportunity frequently to observe a very wide shift in the functional state of the internal environment. This includes reactions of various internal organs, i.e., the cardiovascular system, trophic functions, metabolic processes, etc.

These questions have long since attracted the attention of physiologists. Thus, N. Wedensky (1954) observed in his lectures as far back as 1911-1913 that the "sphere of phenomena which may be subjected to hypnotic suggestion is extraordinarily wide; that it does not confine itself to the region of higher nervous acts, but includes various aspects of the vegetative life of the organism."

But, whereas certain of these reactions were repeatedly observed by former investigators, the data they obtained could not be scientifically substantiated before the development of Pavlov's teachings on the higher nervous activity. Besides, by far not all the divisions of the vegetative and endocrine systems were the object of these investigations. Thus, the influence produced on metabolism, and in particular on the water and carbohydrate metabolism, etc., by verbal suggestion of corresponding content had not yet been investigated from this point of view. Changes in precisely these processes could, of course, have been revealed most objectively.

METABOLIC PROCESSES

At the end of 1928 we conducted a series of studies with sham drinking of a certain amount of water under the influence of corresponding suggestions during suggested sleep for the purpose of ascertaining the possibility of thus influencing water metabolism.

1. The amount of urine excreted by subject S. in two hours in the waking state was determined beforehand. For this purpose the urinary bladder was emptied at 11:15 a.m.; 150 ml. of urine with a specific gravity of 1.019 was voided at 1:15 p.m. Suggested sleep was induced at 1:18 p.m. and the following suggestion was made to the subject: "You have a pitcher of water and an empty glass before you. You must pour water from the pitcher into the glass and drink it." Actually, there was no pitcher, nor glass on the table. This suggestion was made in order to create in the cerebral cortex a sufficiently extensive and complex focus of excitation connected with visual, auditory, tactile and kinaesthetic analysers. Subsequently the following suggestion was made: "You are drinking water, you have drunk one glass, you are drinking another glass," etc. At this time the subject reached out as if she were taking a glass, brought her hand to her mouth and made swallowing movements as if she were drinking water. "You are now drinking the third glass ... the fourth." "You have drunk four glasses." After this, subject S. was immediately awakened. She felt good. At 1:30 p.m. she said she wanted to urinate. The urine collected amounted to 230 ml. with a specific gravity of 1.011. Subsequently, she had frequent urges to urinate and the urine, as the data cited below show, was voided in small portions (Table 1).

Table 1

Time of urge	Amount of urine (in ml.)	Note
1:30 p. m.	230	At 2:30 p. m. the subject said she was hungry and thirsty. She asked: "What have you done ? Why such frequent urges ?"
1:40 p. m.	10	
1:50 p. m.	25	
2:20 p. m.	20	
2:30 p. m.	10	
2:55 p. m.	40	At 3:30 p. m. the same complaints and the same questions.
3:10 p. m.	30	
3:30 p. m.	20	
Total.....	385 (specific gravity 1.011)	

Thus, whereas 150 ml. of urine was voided in the period of two hours before the aforementioned suggestions, 385 ml., i.e., 165 per cent more urine was voided after sham drinking of 4 glasses of water with the specific gravity lowered (by 0.008).

2. The same subject; on the basis of the preceding study we found it possible to confine ourselves to a determination of the amount of urine excreted only in one hour because the picture was clear already during the first hour; we had the following effect: from 11 : 35 a.m. to 12 : 35 p.m. the amount of excreted urine constituted 50 ml. (specific gravity 1.018). At 12:38 p.m. subject S. was put into a state of suggested sleep after which the suggestion was made: "You are drinking one glass of water" (S. immediately performed the corresponding movement of her arm and made a swallowing movement); "You are drinking one more glass."

"You still want to drink and you are drinking the third glass. You have drunk 3 glasses of water."

The subject was awakened at 12:45 p.m. By 13:05 p.m., i.e., 20 minutes after awakening, she wanted to urinate and voided 225 ml. of urine. At

13:38 p.m., i.e., 33 minutes later she wanted to urinate again and voided another 250 ml. of urine. A total of 475 ml. of urine (specific gravity 1.011) was excreted during the hour.

Thus this time the amount of urine increased nearly 10-fold in the same unit of time and the specific gravity decreased by 0.007 (Fig. 61).

3. The same subject S. We tested her blood before and after the corresponding suggestions of "water-drinking." Assuming that with such a loss of water by the tissues the blood should undergo corresponding changes (condensation) we measured the amount of haemoglobin and counted the erythrocytes.

Before the beginning of the study 70 ml. of urine with a specific gravity of 1.015 was excreted in one hour; there was 67 per cent haemoglobin, while the erythrocyte count was 3,983,000. After the usual suggestion of drinking 3 glasses of water, 200 ml. of urine (specific gravity 1.013) was voided in one hour; there was 71 per cent haemoglobin, while the erythrocyte count was 4,090,000.

Thus, in addition to the usual increase in diuresis with a drop in the specific gravity of the urine a process of blood condensation was correspondingly observed in this case.

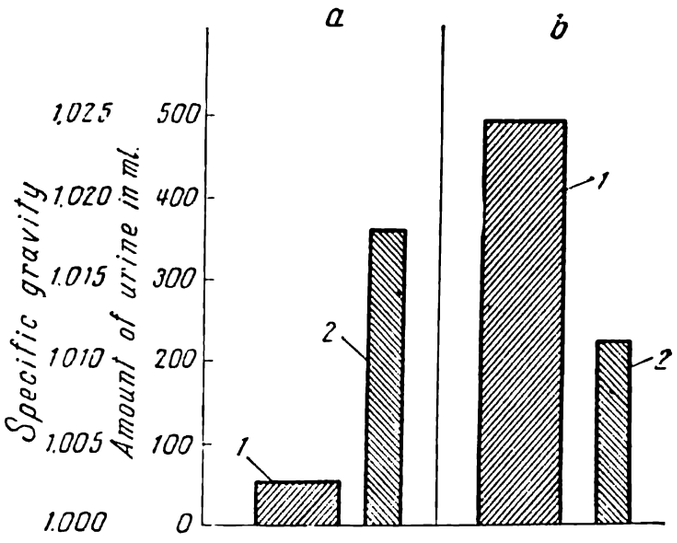


Fig. 61. Diuresis in one hour before (*a*) and after (*b*) suggested drinking.

1—amount of urine; *a*—specific gravity.

Our studies were similar to K. Bykov's experiments which he reported at the Second All-Union Physiological Congress (in Leningrad) in 1926 and which gave an impetus to our studies. Whereas in Bykov's experiments the part of the diuretic stimulus was played by the very procedure of preparing for the ingestion of water into the animal's rectum, in our case the part of this "diuretic" was played by the content of the corresponding verbal suggestion.

In all of the experiments we conducted we observed a very rapid rise in diuresis: a large portion of urine was voided already in the first 20 to 30 minutes (especially in the first study).

Analogous results were obtained by M. Linetsky (physiological laboratory of the Central Psychoneurological Hospital of the Ministry of Railways, 1949) who conducted 41 investigations on 9 persons.

All these data show that it is possible to influence this type of metabolism by verbal suggestion. Similar studies were conducted at the Vienna Psychoneurological Clinic by Hoff and Wermer (1928), but in addition to sham water-drinking, they made the suggestion of the forthcoming increase in urine excretion.

A conditioned bond can also be formed, as K. Bykov showed (1947), through the humoral system. "Changes in the physical and chemical state

of the fluid systems of the body (blood, tissue fluid and lymph)," says he, "may be the basis for the formation of a conditioned reflex during simultaneous stimulation of the cerebral cortex from any receptor." Any variation in the fluid system of the organism "may serve as a basis for the formation of neurohumoral bonds," in particular, "hydraemia of the blood may underlie the development of the conditioned reflex of micturition." A change in the water composition of the urine occurs in response to the application of a conditioned stimulus and reflects the corresponding changes in the water composition of the blood.

Whereas the foregoing data show the possibility of obtaining a shift in one direction, clinical observations testify to the possibility of producing a shift in the same manner also in the opposite direction. Below we cite cases of so-called diabetes insipidus in which verbal suggestion produced a favourable effect. Suggestive therapy to the first 2 patients suffering from a very severe and persistent form of diabetes insipidus of a psychogenic origin was administered by V. Kislov.

The first patient spent several months at the Kharkov Hospital Therapeutic Clinic.

1. The patient, 29 years old, refugee from Constantinople, had been sick with diabetes insipidus for 12 years. Anamnesis showed repeated psychic trauma: during the war, in 1914, he saw his father, mother and two brothers being sabred to death. He himself had escaped to Greece where he had wandered and lived in poverty for a long time. At that time he began drinking a lot of cold water; his thirst sometimes grew morbid, and he consumed 25 to 30 litres of water a day. He endured hunger more easily than thirst. Brief status: sharply undernourished, weight 32.7 kg. at a height of 156 cm. Internal organs normal, urinary bladder overfilled. Mood dejected, sleep disturbed, tendon reflexes weakened. Urine analysis: specific gravity 1.000, the rest is normal. Data of microscopic investigation: from 1 to 3 leucocytes in the field of vision, rarely epithelium of the urinary bladder and erythrocytes. Gastric juice analysis: low general acidity and traces of free hydrochloric acid. The roentgenoscopy of the hypophysis revealed no pathological changes.

Visual acuity and condition of ocular floor normal, Wasserman reaction (taken several times) negative. Drank close to 14.5 litres of water a day and voided from 15.2 to 16.4 litres of urine. Drug treatment yielded no effect (hypophysin was not used).

Since the anamnesis contained a psychic trauma after which the foregoing symptom complex developed, psychotherapy in the form of indirect suggestion was administered; an indifferent mixture (fennel water 200.0, tablespoonful 3 times a day) was prescribed and a corresponding verbal suggestion of the "extraordinary efficacy of this remedy" was made in the waking state. It was suggested that "if the patient wanted to get well he should drink the prescribed medicine" which he had never been given before. At the same time he was told authoritatively the very first day that "with each spoonful of medicine consumed his thirst would diminish and he would drink as much water as he would be instructed."

The following record shows that the indirect suggestion produced its effect: whereas from March 17 to March 18 the patient had drunk (as on preceding days) 14.2 litres of water and voided 16.8 litres of urine (specific

gravity 1.000), after the aforesaid suggestions, reinforced by consumption of fennel water repeated daily for a period of 10 days, the picture of the diuresis changed (Table 2).

Table 2

In 24 hours	Water drunk (in litres)	Urine voided (in litres)	Specific gravity of urine
18.3	9	10.8	1.000
19.3	5.7	10.8	1.000
20.3	6	10.8	1.000
21.3	4.8	6	1.001
22.3	4.8	7.2	1.002
23.3	3	3.6	—
24.3	3	3.6	—
25.3	3	4	—

As we see, in this case the amount of the urine voided exceeded the amount of water consumed. Thus, Zondek (1925) in the chapter on diabetes insipidus wrote: "... polyuria may reach such an extent that it exceeds the amount of water consumed by the organism."

As the thirst sharply decreased, the patient acquired a sense of well-being and regained his appetite. No further attempts to reduce the amount

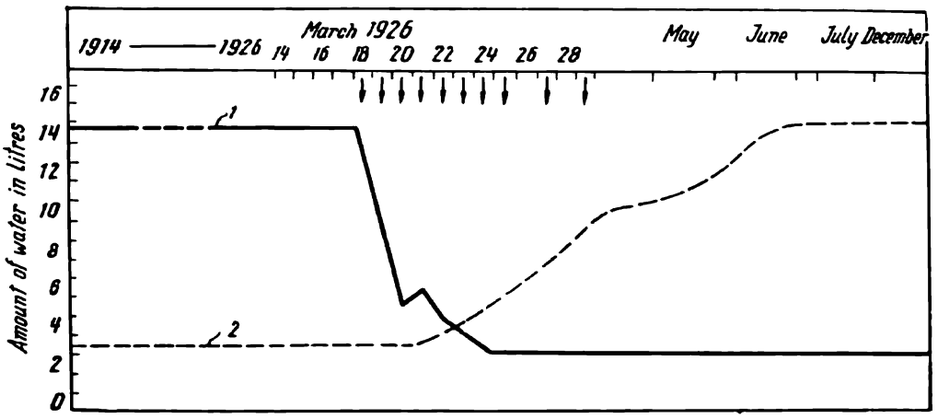


Fig. 62. Diagram showing efficacy of suggestive therapy in psychogenic diabetes insipidus.

1—amount of water (in litres) drunk by the patient in 24 hours; *2*—patient's condition (rise of curve signifies improvement). Arrows indicate sessions of indirect suggestion on the conscious level.

of consumed liquid (including milk, dinner and tea) were made. The patient felt better with each passing day and three weaks after the beginning of psychotherapy he was discharged. During all that time the amount of liquid consumed by him per day did not exceed the norm set for him, i.e., 3.2 litres. His *libido* which had grown very weak also awakened. Gradually he began to work. By December he put on 9 kg. of weight. He was under observation for 8 months during which time his thirst did not increase (Fig. 62).

Thus we see that an indirect suggestion, i.e., suggestion by means of an indifferent stimulus (fennel water) used in combination with direct verbal suggestion, produced a very stable positive effect.

2. Patient P., 14½ years old, was undergoing treatment at a Kharkov therapeutic clinic and was demonstrated by V. Kogan-Yasny at one of his lectures on endocrinology. Diagnosis: diabetes insipidus (1927). Roentgenography of the hypophysis showed no deviation from the normal. Injections of hypophysin were administered for a period of a month due to which consumption of water and excretion of urine decreased. But tormenting thirst reappeared as soon as injections of hypophysin were discontinued and the consumption of water increased to 14 litres per day. The patient was discharged without any improvement. The anamnesis contained a psychic trauma: 9 years previously a coachman pursued the boy threatening him with a whip. Upon running into the house the boy fainted and did not come to for a long time. Having regained consciousness he asked for water and drank several cupfuls at one draught. From then on he began drinking enormous quantities of water, especially at night. Owing to that, he could hardly wait for the end of his lessons at school. During school excursions and trips to the countryside he would run home if there was no water near by; sometimes he quenched his thirst by his own urine. He was backward in school, dull, sluggish and weak. He had a hard time studying because "thoughts about water never left him for a moment." He drank as much water at night as he did during the day and got up 10 times during the night to urinate.

The patient, apparently, belonged to the weak general type of nervous system and was very suggestible. He fell into a drowsy state accompanied by complete muscular hypotonia at the very first session of hypnosuggestive therapy. The following encouraging suggestion was made in this state: "Your ailment will disappear after the treatments and you will stop drinking so much water. If you feel thirsty, it will suffice only to rinse your mouth or make a few swallows. You will acquire an appetite, a sense of well-being, an interest in your studies and will catch up with your schoolmates." As a result of such daily suggestions, the boy began to consume much less liquid. The observation was conducted at the patient's home where the amounts of consumed and voided liquid were thoroughly recorded. The patient usually voided up to 12 litres of urine per day. The day following the first session of verbal suggestion, the amount of water drunk by the boy decreased to 8 litres and he got up six times during the night. Subsequently, the boy got up fewer times during the night and consumed less liquid (Table 3).

Table 3

In 24 hours	Water drunk (in litres)	Number of times patient got up during the night
18.5-19.5	5	4
19.5-20.5	3	3
20.5-21.5	3	2
21.5-22.5	3	2
22.5-23.5	2.6	2
23.5-24.5	2.4	2
24.5-25.5	2.6	2
25.5-30.5	2.6 (per day)	2-3

The sessions of verbal suggestions during suggested sleep were conducted daily, but it was impossible further to reduce the consumption of water. A marked improvement in the condition of the patient was noted, nevertheless: his appetite increased, he gradually began to feel better, developed an interest in his school studies, and was able to stay to the end of the lessons. He had grown stronger and from an apathetic boy he was transformed into an alert and mobile fellow interested in his studies, games

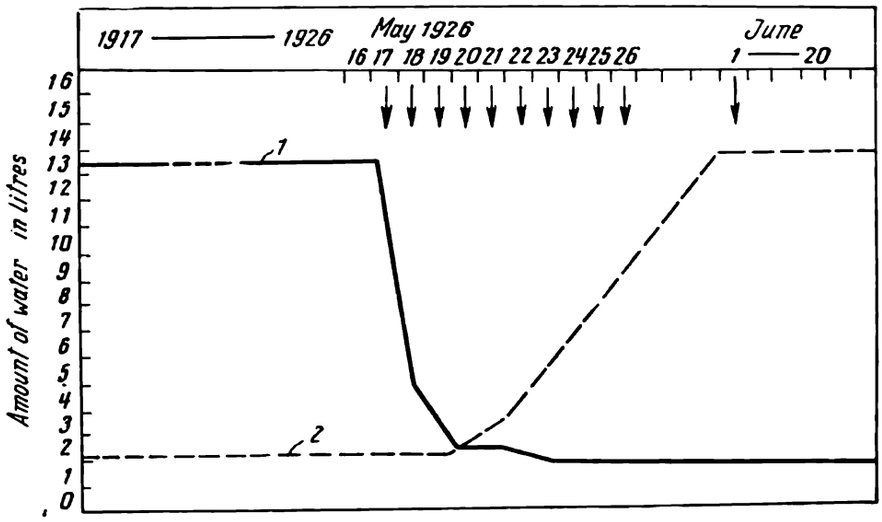


Fig. 63. Diagram showing efficacy of hypnosuggestive therapy administered during suggested sleep in a case of emotiogenic diabetes insipidus of 9 years' standing.

1—amount of water (in litres) drunk by patient in 24 hours; 2—patient's condition (rise of curve signifies improvement). Arrows indicate sessions of direct suggestion during suggested sleep.

and physical culture (Fig. 63). He did not require large amounts of water. In July he went to the country where he spent more than a month. Despite hot days and work in the field he was not troubled with thirst (observation by V. Kislov).

3. Patient N., 28 years old, was referred to us by an endocrinological clinic with complaints of terrible thirst from which she had suffered for a period of 10 years; she drank from 8 to 17 litres of water a day. Diuresis correspondingly high, specific gravity of urine 1.001, sharp loss of weight; she had been treated ineffectively in Kislovodsk at neurological and endocrinological clinics where a diagnosis of diabetes insipidus was made.

The anamnesis revealed that the beginning of the ailment was connected with distressing experiences. Four sessions of verbal suggestion in a drowsy state were conducted, with the result that the psychogenic polydipsia and polyuria were fully removed; the condition of the patient began to improve after the very first session. After the third and fourth sessions her need in water did not exceed 1.5 litres per day. She began to regain her efficiency. After recovery she was demonstrated to physicians and students at medical practice under Professor N. Tatarenko. Positive catamnesis for two years with no relapses (observation by A. Sosedkina).

It will be noted that P. Podyapolsky (1909) also described a picture of diabetes insipidus of 4 years' standing (up to 25 litres of liquid per day);

the disease had developed after a psychic trauma and was stopped under the influence of only 2 sessions of hypnosuggestive therapy; the subject subsequently kept well for 18 years.

Functional polydipsia and polyuria of a psychogenic origin were also pointed out by Déjèrine (1912) who cited a case of liquid consumption of up to 7 litres per day and of a corresponding amount of urine excretion, which lasted for a period of 5 years. Zondek (1925) observes the same thing in describing several patients in whom diabetes insipidus had to be regarded as a "result of psychic processes." In some people the development of polydipsia, according to his data, may also be caused by imitation: he happened to observe a 13-year-old boy who suffered from polydipsia and polyuria for a period of 1 year. The boy consumed up to 8 litres of liquid per day "having learned to drink so much from his school-mate." Under the influence of vigorous psychotherapy this bad habit completely disappeared.

All the aforesaid points to the necessity of considering possibilities of psychogenic diabetes insipidus, which determines both the prognosis and the method of therapy. It is but natural that in such cases psychotherapy should be the only efficacious method. Observations conducted by V. Kislov, P. Podyapolsky and A. Sosedkina indicate that in this form of ailment the method of direct suggestion during suggested sleep is the most effective. One can only wonder at the speed with which the vegetative function deranged for a long time can be normalized. (For example, in the patient observed by P. Podyapolsky the derangement had lasted 4 years, in A. Sosedkina's patient, 10 years, in V. Kislov's patient, 12 years.)

We know that the internal organs and the endocrine glands are connected with the vegetative nervous system and consequently with the cerebral cortex; various authors have long since noted that glycosuria may manifest itself as a result of emotional shock. We know, for example, of the so-called "diabetes of stockjobbers." All this indicates that the cerebral cortex is involved in the development of the derangement of the carbohydrate balance. If this be so, then it is possible to produce definite changes in *carbohydrate metabolism* by verbal influence of corresponding content.

As a matter of fact, V. Finne (1928) was the first to show that hyperglycaemia could be provoked in suggestible subjects by corresponding verbal suggestion. In his investigations conducted in Yessentuki the content of sugar was determined by the method of Hagedorn and Jensen with a real sugar load increasing the amount of sugar in the blood from 0.100 to 0.140 mg. per cent within an hour, while a sham load produced by corresponding suggestion during suggested sleep increased the sugar from 0.104 to 0.109 mg. per cent.

We have also conducted a series of analogous investigations (1929). Some of them are given below.

1. At 11 o'clock in the morning of December 12, 1928, 3 hours after breakfast consisting of a piece of veal, 2 cups of coffee and 4 teaspoonfuls of sugar, the subject's blood was taken and the sugar content was determined (by the method of Hagedorn and Jensen). The amount of sugar equalled 0.097 mg. per cent. After real feeding (150 grm. of honey and 50 grm. of granulated sugar) the amount of sugar in the blood increased by 33 per cent within 50 minutes.

2. The same breakfast was given at 8 o'clock in the morning of December 19, and at 11 o'clock the amount of sugar in the blood constituted 0.094 mg. per cent. After the subject's blood was taken, the subject was put into a state of suggested sleep during which a suggestion was made that he was eating the same portion of honey and sugar which he had consumed on December 12. He was told he had already eaten it. Fifty minutes after awakening, the amount of sugar in the blood turned out to have increased by 0.025 mg. per cent.

3. At noon of February 7, 1929, four hours after the usual breakfast, the blood was examined for sugar content in the same person and by the same method: the amount of sugar equalled 0.075 mg. per cent. After that, without consuming any sugar the subject was put into a state of suggested sleep during which it was suggested to him that he had eaten the same amount of honey and sugar he had consumed on December 12. Forty minutes later the content of sugar in the blood already equalled 0.087 mg. per cent, and, consequently, in this case the suggested "load" increased the content of sugar in the blood.

Subsequent investigations conducted by A. Dolin, Y. Minker-Bogdanova and Y. Povorinsky (1934), N. Yershov and M. Ksenokratov (1935), and M. Linetsky (1951) confirmed that it was really possible to produce hyperglycaemia by corresponding verbal suggestion. The studies conducted by N. Yershov and M. Ksenokratov revealed (in 17 subjects) that the verbal suggestion of "a sense of sweetness in the mouth" alone made during suggested sleep resulted in the appearance of sugar in the urine. It should be observed that 2 of the 4 subjects studied by M. Linetsky during suggested eating of sugar developed hyperglycaemia, while the other two developed hypoglycaemia. We believe that the very fact that hypoglycaemia can be caused by suggested eating of sugar is extraordinarily interesting and requires further study.

K. Kosyakov's (1952) studies conducted by the method of indirect suggestion also confirmed the possibility of provoking conditioned reflex hyperglycaemia with an unconditioned stimulus in the form of glucose and with conditioned stimuli—saccharine and the suggestion: "I am giving you sugar." He also produced conditioned reflex hypoglycaemia in five out of seven patients with diabetes mellitus who were being treated by insulin and were given injections of saline under the guise of insulin.

An attempt to provoke hyperglycaemia by suggestion was made by Marcus and Sahlgreen (1925) at the Stockholm Nervous Clinic: by suggesting to the subject that he was eating sugar during suggested sleep, they studied the content of sugar in the blood. In this case the result was negative and they produced no expected hyperglycaemia by the sham feeding (the amount of sugar in the blood was estimated by the same method); Van der Welden (1926), however, observed a positive result by a suggested sugar intake also during suggested sleep.

The investigations conducted by Gigon Aigner and Brauch (1929) in the opposite direction are interesting (but require verification). They suggested to four diabetic patients that their health was improving and that the amount of sugar in their urine and blood was diminishing. The authors claimed to have succeeded in reducing the amount of sugar both in the blood and urine. It will be noted that Y. Povorinsky obtained con-

ditioned reflex insulin hypoglycaemia (1939) after repeated injections of insulin administered for therapeutic purposes to schisophrenic patients; injection of saline alone induced a hypoglycaemic state. Similar results were obtained by N. Savchenko (1939) in experiments on dogs. He succeeded in provoking conditioned reflex glycosuria using adrenalin as an unconditioned stimulus, and a whistle with a simultaneous needle-prick as a conditioned stimulus.

Considering the data of Pavlov's school it must be acknowledged that the processes arising in the cerebral cortex under the influence of factors of the external and internal environment may affect the nature of metabolism through the subcortical centres. As K. Bykov observes (1947), "cortical influence is confined to putting into play the working mechanisms located, probably in most cases, in the nearest subcortical structures."

It follows that the question of suggested, i.e., conditioned reflex, hyperglycaemia may also be of some significance to diabetes mellitus because psychogenia may be the source of diabetes mellitus and in these cases psychotherapy may be indicated. This raises the question of the role of the psychogenic factor in the development of diabetes mellitus. The clinic must consider the possibility of such genesis and make a corresponding medical approach to it.

Few studies of the influence of verbal suggestion on *thermoregulation* have thus far been made. In the past they were casual and did not attract any particular attention, apparently because of the difficulty of their proper scientific substantiation. This type of investigation, however, must be not only of theoretical interest but also of practical importance because the problem of "psychogenic fevers" and of "hysterical" rises in temperature has always been controversial despite the publication of individual observations both by Russian and foreign authors.

I. Alexandrov's experiments (1937) testify to the fact that a rise in temperature in the dog can be provoked by conditioned reflex means.

The first detailed clinical experimental work of this type was conducted in the Soviet Union by V. Zelenin, Y. Kannabikh and P. Stepanov (Hospital Therapeutic Clinic of the Second Moscow Medical Institute, 1936) who studied tubercular patients and used the method of indirect suggestion in the waking state. Under the guise of *thermoregulin* the patients were injected 0.1 ml. of sterile water. The procedure was accompanied by the assertion: "After this you shall feel warm and your temperature will rise." In most of the patients, as careful clinical observation showed, the temperature really rose by 0.2 to 0.5 degrees.

With respect to tuberculous patients, P. Köhler and Behr (1905) conducted observations based on the fact that subcutaneous injections of tuberculin were usually accompanied by a fever reaction. It turned out that in many tuberculous patients, who did not run a high temperature when warned about the rise in temperature which might take place after the injection and therefore awaited this injection excitedly, the temperature really sharply rose sometimes running up to 38^0 C.

But they also showed a rise in temperature (to the same value) when they were injected sterile water or even when their skin was merely punctured by the needle of the syringe. Under the influence of verbal suggestion the temperature of these patients rose precisely at the appointed

hours. Authors correctly discern the nervous mechanism of this phenomenon without considering it a symptom of hysteria since the patients, according to their data, showed no signs of hysteria. The authors come to the conclusion that among the tuberculous patients there are more persons with high psychogenic lability of the thermoregulatory apparatus than could be supposed.

By means of verbal suggestion N. Bezyuk (1938) provoked a rise in temperature in an emotionally labile subject in the waking state and during suggested sleep. During suggested sleep it was possible to raise and lower the temperature in the course of the same day. The subject showed extremely labile thermoregulation (when she was in the dermatological clinic because of her skin disease). During menstruation her temperature rose to 37.8° C. and during excitement connected with the visits of her relatives it ran up as high as 39.2° C. Her temperature also rose when she received letters or news (mostly of unpleasant and disturbing content). High thermoregulatory lability must be taken into consideration when the temperature of the body changes under the influence of corresponding verbal suggestions.

Kraft-Ebing (1888)[1] was the first foreign author to succeed in producing certain temperatures, both high and low, in his subjects by verbal suggestion during suggested sleep, setting the periods for these temperatures in advance.

By suggesting a "loss of the sense of heat and cold" Hellieg and Mares[1] produced a stable subnormal temperature which persisted on the same level (34.5° C.) for several days.

By suggesting an attack of fever and the cessation of this attack under hypnosis Mohr, Kohnstamm and Eichelberg (1921) considerably raised and lowered the temperature of the body.

A physiological substantiation of our data testifying to the possibility of influencing the thermoregulatory function by verbal suggestion, i.e., through the cerebral cortex, is offered by the investigations of R. Olnyanskaya and A. Slonim (laboratory headed by K. Bykov, 1938), who demonstrated this possibility. They established the influence of the cerebral cortex on processes of thermoregulation in a number of cases, the conditioned stimuli being not only the situation in which the investigations were conducted, but also the factor of time.

Cases of "hysterical fevers" accompanied by a rise in temperature to a paradoxical value (46° C.) were described in Russian literature by Novitsky (1897), Foss (1904), Yakovenko (1905), Khoroshko (1908), Valkovsky (1910), Stichinsky (1923), Blumenau (1926), et al., and in foreign literature by Sarbo (1891), Dubois (1912) and Déjèrine (1912) who observed a temperature of 43 to 44.8° C. in a girl for a period of 11 days.

Overlooking the possibility of this type of emotiogenic "fever" leads somatologists to diagnostic errors.

We can also cite an example of emotiogenic hyperthermia. In the clinic we happened to observe a 24-year-old student who suffered from a neurosis of a hysterical type with severe convulsive fits accompanied by loss of consciousness. During the fits, the temperature rose to 42 and 43° C. on an

[1] Quoted from Löwenfeld.

ordinary medical thermometer. The hysterical neurosis was caused by serious family troubles. A course of explanatory and hypnosuggestive therapy removed the entire syndrome, including the phenomena of hyperthermia.

The foregoing studies and clinical observations should attract the attention of clinicians because they testify to the real possibility of sharply pronounced temperature variations and of a stable subfebrility of a purely functional nature which not infrequently misleads both internists and neuropathologists. Temperature variations under the influence of emotions are sometimes observed in patients with pulmonary tuberculosis with their labile vegetative nervous system due to the action of the tubercular toxin, which should be taken into consideration by phthisiotherapists.

In conclusion it will be observed that in recent years a number of authors have established the possibility of influencing the *gaseous exchange* also by verbal suggestion. It will be noted, in the first place, that R. Olnyanskaya (1950) and N. Savchenko (the latter experimented on dogs) showed that it was enough for the subjects to find themselves in a situation connected with hard muscular work they had done in the past, to show an increase in gaseous exchange. The same thing was observed during the "preworking" period which was systematically followed by a period of strenuous muscular work. An analysis demonstrated the conditioned reflex nature of these phenomena.

V. Vasilevsky and E. Kagan (1935), as well as D. Shatenshtein (1935), found that suggestion made during hypnotic sleep to the effect that the work had grown harder (or, on the contrary, easier) caused sharp alterations in gaseous exchange.

K. Bykov says (1947) that the "mechanism of influences of the cerebral cortex on metabolism, the ways of these influences and their significance (normal and pathological) are problems whose elaboration has hardly begun and the answer to which may yield a lot we do not expect."

REACTIONS CONNECTED WITH DIGESTION

The existence of conditioned reflex *alimentary leucocytosis* with concomitant high acidity of the gastric juice was first established by N. Zavadsky (1925). The rise in the curve of leucocytosis occurred, according to his data, at the time of either the usual meals or at the highest point of digestion (1 to 3 hours later). Changes in the subject's dietary regimen changed the time when the leucocytosis appeared.

The correctness of N. Zavadsky's inferences was confirmed in our clinic by P. Istomin and P. Galperin (1925) who used the method of verbal suggestion during suggested sleep.

An increase in the leucocyte count was obtained in two subjects under conditions of starvation; in the first—by 1,100 (from 5,000 to 6,100) and in the second—by 1,575 (from 4,700 to 6,275). Subsequently, by suppressing the sense of natural hunger by suggestion, the authors succeeded in preventing the usual increase in the leucocyte count, their number increasing from 5,375 to 5,425, i.e., only by 50, at the usual mealtime. In the second similar study, the leucocyte count was reduced (from

6,300 to 5,575). In the third study, in which the authors suggested increased appetite ("You are very hungry") the leucocyte count rose by 1,550 (from 5,100 to 6,650) and a feeling of hunger appeared. This increase in the leucocyte count turned out to be greater than during actual starvation. Similar data were obtained during a repeated study conducted 4 days later. This time the leucocyte count increased by 2,025 (from 4,275 to 6,300). The following day the appetite was suppressed by a corresponding suggestion causing a decrease in leucocyte count by 1,425 (from 4,975 to 3,550). During a repeated similar investigation (after 1 day of a normal dietary regimen) the number of leucocytes dropped by 1,300.

By verbal suggestion during suggested sleep P. Shcheglov (1930) managed to suppress the feeling of hunger and to elicit a feeling of satiety or, on the contrary, provoke a feeling of hunger after a real dinner, which also affected the content of the leucocytes in the blood as is shown in Table 4.

Table 4

	Number of leucocytes in the blood			
	On an empty stomach	1 hr. after suggested dinner	1 hr. 20 min. after real dinner	After suggested "feeling of hunger"
Subject S.	4,600	13,800	11,200	8,600
Subject A.	10,100	18,300	14,000	10,600

Similar investigations by the same hypnosuggestive method were conducted by A. Topilsky (1928-1929) in Tashkent. The results were identical.

Glazer (1924) used a somewhat different method: his studies dealt with the influences produced on leucocytosis by imaginary or actual consumption of various types of food, and he found that the variations in the leucocyte count were identical in both cases.

The data of these investigations can undoubtedly serve as proof of the possibility of influencing the feeling of hunger and satiety by suggestion and of the conditioned reflex nature of alimentary leucocytosis in these cases. The aforesaid data of N. Zavadsky and Y. Lobach (1928) and recently of S. Kiselyova (1951), establishing a conditioned reflex alimentary leucocytosis in healthy people and in the mentally deranged, should be taken into consideration. A. Urin and Y. Zenkevich (1952, 59 studies of 25 patients) also found a conditioned leucocytotic reflex to mealtime. Conditioned leucocytotic reactions to the factor of time in dogs were likewise obtained in K. Bykov's laboratory (1949).

All this indicates that reflex alimentary leucocytosis is a reaction not only to food intake, but also to corresponding verbal suggestion, to the idea of food and to the usual mealtime, and is thus a conditioned reflex reaction to certain conditioned stimuli including the factor of time.

Being interested in the question of the tone of the stomach muscles in feelings of hunger and satiety, we conducted roentgenoscopic examinations of several persons in 1933. The data we obtained showed that when the subject experienced a feeling of hunger during suggested sleep, his stomach

exhibited sharply pronounced peristalsis, its muscle tone rising and its lower pole lifting considerably. On the other hand, during suggested satiety, the stomach dropped, passed into a state of hypotonia, showed a picture of a slight distention, its peristalsis was normal (or somewhat decreased) and evacuation slowed down.

The influences exerted by verbal suggestion on the feeling of *hunger* or *satiety* may be directed at suppressing increased appetite or at increasing it when there is no desire to eat, or, lastly, at removing the perverted desire for certain foodstuffs contraindicated to the patient. Clinicians must remember these possibilities for cases in which it is necessary rapidly to improve the nutrition of the patient or, by following medical indications, completely to suppress for some time the desire of the patient for food or limit this desire.

By way of illustration we shall cite the observations of the Propaedeutic Therapeutic Clinic of the Kharkov Medical Institute where this method was used by V. Kogan-Yasny in 1924.

1. Patient N., 10 years old, with a diagnosis of diabetes mellitus, complains of overwhelming hunger. The latter circumstance forced her to break her diet by secretly taking at night the foodstuffs forbidden to her and consuming even food wastes, etc. Since she was being treated by insulin this directly interfered with righting her carbohydrate metabolism. A corresponding suggestion was made in a drowsy state after which, as the author writes, the "girl's feeling of hunger and thirst undoubtedly decreased," she could now be disciplined as regards food intake and strictly observed the prescriptions of the physician who treated her. This helped to bring the sugar down to zero and to remove the acetone (observation by V. Kogan-Yasny).

2. Patient K., 52 years old, with a diagnosis of diabetes mellitus had great difficulties in observing her prescribed restricted diet. After several sessions of corresponding suggestions she began to observe the diet strictly and, as a result, was discharged from the clinic within two weeks without insulin treatments and with no sugar or acetone in the urine.

3. Patient L., 36 years old, applied to us on the advice of her physician, complaining of an incessant feeling of hunger and thirst. She consumed from 2 to 2.25 kg. of bread and 800 grm. of meat daily, putting some bread under her pillow for the night, besides. She drank at least 25 to 30 glasses of water per day; "I drink water like a fish," the patient said. She had a tormenting feeling of hunger immediately after meals and any attempt to abstain from further eating invariably led to extraordinary general weakness. She had been sick for a period of 10 years. The feeling of hunger appeared for the first time suddenly, when the patient was buying provisions in a foodstore: she had felt dizzy, a feeling of hunger had immediately appeared and had never left her for a single hour ever since. Since the onset of the ailment the patient had rapidly put on weight; before applying to us she could hardly move because of her corpulency. Several years previously she had taken a course of thyroidine treatments, but to no avail. A year before coming to the dispensary she was treated by neuropathologists one of whom prescribed an indifferent mixture and another—thyroidine and a restricted diet. In two months' treatment she lost 8 kg. but the sense of hunger never left her and her increasing weak-

ness especially in the arms and legs continued. A roentgenological examination, a blood test and other examinations showed nothing pathological.

Considering the uselessness of her previous treatments, psychotherapy was administered first in a state of rest with the eyes closed (according to V. Bekhterev) and then in a drowsy state; it was made clear to the patient that the "feeling of hunger was in no way connected with the needs of her body for that amount of food, but was provoked by an excitation of the sections of the brain concerned with that type of sensations." Then it was imperatively suggested to her: "You can easily restrict your food intake, and this will not result in any weakness. You can suppress the feeling of hunger, your excessive food requirements are

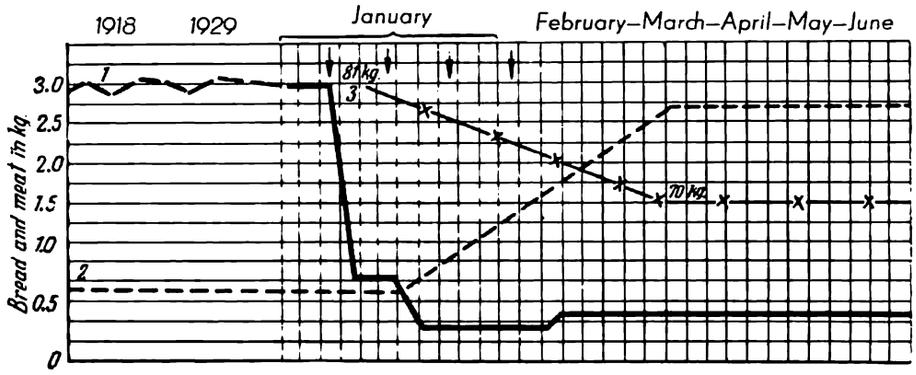


Fig. 64. Diagram showing efficacy of suggestive therapy with a patient suffering from bulimia, polydipsia and obesity.
1—amount of bread and meat (in kg.) consumed by patient in 24 hours; 2—patient's condition (rise of curve signifies improvement); 3—body weight. Arrows indicate sessions of suggestive therapy.

gradually decreasing and disappearing." In addition, successive daily limits of the amounts of food to be consumed were established: at first it was suggested that she did not have to eat more than 800 grm. of bread per day, then no more than 400 grm. per day for a period of 3 days, and finally no more than 300 grm. But the patient couldn't do with the latter portion for more than a few days since with this daily ration she said she felt weak and asked that the portion of bread be increased. 200 grm. of bread per day were "added," which fully satisfied her. A limitation of liquid consumption (no more than 2 glasses a day plus dinner) was suggested at the same time; it was also suggested to the patient that she "had no desire at all for any sweets or anything made of flour."

Weekly weighings showed that the patient gradually lost weight, losing 10 kg. in two months; she began to feel much better, her weakness completely gone (which had not been the case, as was pointed out above, during her treatments by thyroidine). The patient felt good during the subsequent 15 years of observation (Fig. 64). After recovery she was demonstrated at the Psychoneurological Section of the Kharkov Medical Society and on March 26, 1929, at the session of the Kharkov Society of Endocrinologists. In this case, like in the foregoing cases, there was a functional derangement which was erroneously taken for an organic disturbance (observation by I. Khalfon).

The influence of verbal suggestion on the function of the *digestive glands* was also an object of special studies by several authors.

Thus Heyer (1923) showed that when "food intake" was suggested during suggested sleep, the composition of the gastric juice suffered changes varying with the nature and composition of this imaginary meal. Delhougne and Hansen (1927) obtained the same results in relation to the pancreas: the changes in the composition of the pancreatic juice corresponded to the nature of the "food" the "consumption" of which was suggested by corresponding verbal influence during suggested sleep. Thus, when "meat food" was suggested, trypsin was discovered in the juice, when "carbohydrate food" was suggested the juice contained diastase, while in response to the suggestion of "fatty foods" the juice contained lipase. The studies conducted by Landheinrich (1922) showed that the nature of the bile could also be changed according to the suggested intake of one food or another: if consumption of dry food deprived of fats was suggested, a light and thin bile was secreted, whereas if "fatty food" was suggested, the bile was thick and dark. Dispensary and clinical observations also show in complete conformity with these data that verbal suggestion is quite an effective method of treating psychogenic dysfunctions of the gastrointestinal tract. We cite the following typical examples by way of illustration.

1. Patient N., 30 years old, complained of a loss of weight, general weakness and tormenting daily tenesmuses with a slimy liquid stool (from 2 to 3 times during the day and twice during the night). She had been sick for a period of 5 months; a dancer by occupation she had been put on the invalid list. When her ailment started she had moved her bowels both day and night up to 10 times in 24 hours, which later decreased to 5 times in 24 hours, but always contained a large amount of mucus. By prescription of physicians who diagnosed enterocolitis the patient was forced to observe a strict diet which debilitated her. Sulphidine and disulphane helped only when administered, while other measures (enemas, compresses and pharmacological remedies) failed to give her relief; nor did her trip to a health resort help any.

We discovered a sharp psychic trauma: intestinal dysfunction began the day after N. suddenly fell knee-deep into a hole filled with cold water and was terribly frightened. The evening was cold and she was afraid lest she get a cold in her legs. The following day the aforesaid intestinal dysfunction began and persisted for a long time (5 months). All this testified to the fact that a pathologically inert excitatory process arose in the cerebral cortex ("trigger point," according to I. Pavlov).

Taking this circumstance into consideration, we availed ourselves of a permission of the health resort physician, Associate Professor K., who treated her, and administered psychotherapy in the form of a reassuring verbal suggestion, while the patient was in a state of light drowsiness, suggesting to her that she forget the accident; following this she was given a one-hour session of hypnotic rest during suggested sleep.

After this session "the patient spent a quiet night for the first time since the beginning of her ailment" without the usual desire to defecate. During the day-time she only had two bowel movements with a small amount of mucus. After the second session of suggestion, also followed

by a one-hour hypnotic rest, she had only one perfectly normal bowel movement owing to which she was prescribed the general health resort diet.

Subsequently she rapidly regained her efficiency. She was under our observation for a period of 5 years and was perfectly well.

Thus, by two sessions of motivated verbal suggestion during a suggested drowsy state with one-hour sessions of suggested rest during suggested sleep, the dysfunction of the intestines which had lasted for a period of several months was radically relieved.

2. Patient Z., 35 years old, complained of pressure and pain in the chest during the passage of the swallowed food (the pressure and pain referred to the right half of the chest and to the spine) and of vomiting after meals. It was found that he had been sent to the Surgical Clinic of the Kharkov Medical Institute (director, Professor V. Shamov) for an operation on a "tumour of the oesophagus" but since an X-ray examination showed no deviation from normal, the patient was sent to the psychotherapeutic section of the dispensary.

A detailed anamnestic interview revealed severe family trouble which the patient had had incessantly for a period of $2^1/_2$ years; this trouble had resulted in the psychogenically developed neurosis in the form of oesophageal spasm conditioned by the presence of a corresponding cortical "trigger point." The patient fully recovered after 5 sessions of psychotherapy administered during suggested sleep. There were no relapses during the three subsequent years of observation (observation by I. Murakhovskaya).

3. Patient N., 46 years old, complained of pains in the region of the stomach of one and a half years' standing, sporadic diarrheas and constipation (owing to which the patient developed a fear of eating), continuous loss of weight, irritability and insomnia. Since "cancer of the stomach" was diagnosed, an operation was prescribed, which aggravated the condition of the patient even more. An anamnestic interview revealed a severe psychic trauma suffered one and a half years previously (her apartment had been raided by gangsters). Eight sessions of verbal suggestion during suggested sleep (on alternate days) were conducted. The patient was reassured, was told not to take her experience to heart; a cessation of pains, normal intestinal function, restoration of her former well-being and of her appetite and good nocturnal sleep, etc., were suggested. The results were gratifying: the patient's health was fully restored and she had put on 2 kg. in the course of one month. The pains in the region of the stomach ceased after the very first session. The condition of the patient improved with each session followed by a long suggested rest during suggested sleep (observation by Y. Voronina).

4. Patient S., 21 years old, was referred to us for consultation. He had suffered from invariable diarrhea for a period of four months (from 5 to 6 times during the day and 2 to 3 times at night). During all that time he had been on a strict diet. A piece of bread or meat consumed by him provoked pains in the pit of the stomach. Ulcer of the stomach was at first suspected, but the suspicion was not justified. The subsequent diagnoses of internists were: "catarrh of the stomach" and "colitis." All treatments had proved useless.

An anamnestic interview revealed that he had suffered a sharp psychic trauma not long before: he was frightened by a sudden report of a gun in the street near his window while he was taking supper at home. From that moment on he had had a stable and incessant dysfunction of the gastrointestinal tract.

Psychotherapy was administered. The following suggestions were made to the patient in a state of deep drowse: "You have forgotten your experience, your intestines are in order, their function has been restored and you are quite well." The following day the patient stated that "he had had a good night: his intestines did not bother him"; he only had one bowel movement in the morning. After the second session he had a normal bowel movement during the day: after the third session the patient was allowed a mixed diet because "he no longer complained of his gastrointestinal tract." He was discharged a healthy man. Positive catamnesis for 5 years.

The given patient suffered a derangement of the higher nervous activity which had arisen under conditions of a sharp clash of two powerful foci of concentrated excitation in the cerebral cortex. One of these foci was connected with the food intake and, consequently, with the work of the taste and motor analysers (masticatory muscles), the activity of the gastric glands and, under given conditions, was of a nature of a focus of dominant excitation. The other focus had arisen suddenly in the sphere of the activity of the sound analyser due to a stimulation which was superstrong under these conditions (the sudden report of a gun). The strong asthenic emotion (fright) produced at this time led to a derangement of the dynamic structure underlying the alimentary dominant. This resulted in the emergence of a "trigger point" in the corresponding section of the cerebral cortex and led to a deep and stable disturbance of the entire system of cortical regulation of the activity of the digestive apparatus.

Thus we see that as regards all the aforesaid patients the internists failed to consider the possibility of psychic trauma and the development of a neurotic condition on its basis.

In conclusion we shall recall the positive influence of verbal suggestion on, at times, very stubborn constipations long known to hypnologists.

We cite our following observation by way of illustration.

Patient U., 28 years old, could not normally move her bowels for a long time after an abdominal operation and was therefore forced to use enemas. A drowsy state was induced by us and in this state the patient was given the affirmative suggestion: "Starting tomorrow, i.e., January 29, your bowels will move regularly between 10 and 11 a.m." As the patient later reported, from January 29 on there was not a single day when her bowels failed to move precisely at the appointed time in the morning.

We shall not cite any more examples, of which there are too many, because corticogenic disorders of the activity of the gastrointestinal tract occur frequently. The digestive system most vividly manifests the trigger and regulating function of the cerebral cortex established in K. Bykov's laboratories. We believe that this may help in scientifically substantiating the therapeutic influence exerted by verbal suggestion on the corticogenic derangements of the functions of the digestive system.

It is well known from day-to-day life that *nausea* and *vomiting* can not infrequently be provoked by "psychical means"; for example, no sooner do some persons with a high reactivity of the vomiting centre hear about nauseating smells or recall castor oil, etc., than they are nauseated and sometimes vomit. This indicates that such reaction arises through the cerebral cortex, i.e., by way of a conditioned reflex.

Pathologically persistent vomiting of a psychogenic nature is not infrequently observed. This vomiting is usually diagnosed by internists as a symptom of gastric disease and is responsible for the uselessness of the treatments they administer. The following is an example.

1. Patient K., 19 years old, complained of attacks of tormenting nausea and frequent vomiting which were irregular and were not connected with meals; she also complained of a lack of appetite and a depressed state. She had been sick for one and a half years and had lost 8 kg. in the course of one year. In the beginning nausea and vomiting occurred rarely, but then grew frequent. The polyclinic diagnosed "catarrh of the stomach."

The psychotherapeutic department disclosed a sharp psychic trauma during which the patient was nauseated and vomited. Since then all the aforementioned reactions invariably appeared every time she met the person who was guilty of these experiences (her neighbour), i.e., a pathological conditioned vomiting reflex was formed. This conditioned vomiting reaction was gradually generalized and manifested itself in response to varied stimuli in some way or other connected with the person guilty of these experiences. The internists referred the patient to a neuropsychiatric dispensary. Explanatory psychotherapy produced no effect but the subsequent 4 sessions of suggestion during suggested sleep removed the entire syndrome. She was under observation for a period of 7 years with no relapses.

As is well known, the vomiting reaction can be provoked in certain people by means of corresponding suggestion made both during the waking state and, especially, during suggested sleep. Taking advantage of this circumstance in the treatment of alcoholics, we sometimes stimulate them to nausea and vomiting by simultaneously suggesting that they are drinking liquor. A negative conditioned reflex reaction to the given stimulus is thus developed and fixed, and experience shows that a sufficiently strong conditioned reflex bond is really formed in the cerebral cortex under these conditions.

It will be added that psychotherapy should also be administered (both in the waking state and during suggested sleep) to patients suffering from psychogenic oesophagospasm and pylorospasm.

The reaction of the pulse may serve as one of the objective signs of the effectuation of suggested nausea. Figs. 65 and 66 show pictures of the reaction of the pulse and respiration.

Our roentgenoscopic data are also objective: the suggested sensation of nausea elicits a higher tone of the stomach as a whole, lifts it and provokes antiperistalsis. An impression is created that the stomach is about to give up its contents through the oesophagus.

Our associate A. Breslav also observed analogous phenomena: when nausea was suggested, a sharp total contraction of the stomach to a point of complete disappearance of the shadow of its entire caudal part was

roentgenoscopically revealed, so that the barium meal rose to its upper wall. In another case, when nausea was suggested, a weakening of peristalsis and a slight total contraction of the body of the stomach (herald of vomiting) was observed. In still another case, when imminent vomiting was suggested, a marked spastic decrease in the volume of the stomach was observed, while the upper level of the barium meal rose by 5 to 6 cm.

S. Yoffe's studies (1942), conducted under our supervision, showed that it was possible to influence the vomiting centre by suggestion in the

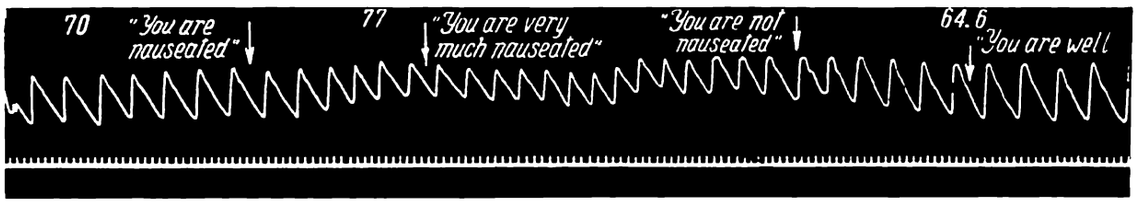


Fig. 65. Change in the pulse after verbal suggestion: "You are nauseated" and "You are not nauseated; you are well" made during hypnotic sleep. Figures show pulse rate.

opposite direction: vomiting, provoked by a subcutaneous injection of 1 ml. of 0.5 per cent solution of apomorphine, was suppressed or prevented by corresponding verbal suggestion. The following are some of his data.

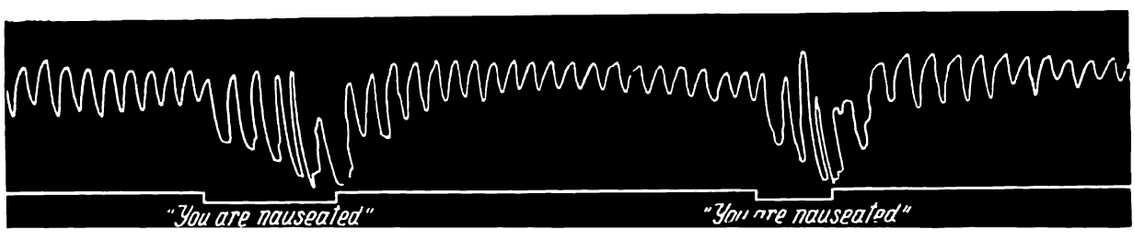


Fig. 66. Respiratory reaction to verbal suggestion: "You are nauseated," made during suggested sleep.

1. Subject K. was injected 1 ml. of an apomorphine solution in the waking state. Four minutes later he felt ill at ease, was nauseated and vomited violently; six minutes later he vomited continuously for a period of 1 minute. Complete relief ensued in the 10th minute.

Four days later he was injected the same dose of apomorphine. Acute nausea, vomiting and general nervousness developed within $3\frac{1}{2}$ minutes. Sleep was immediately induced and the following suggestion made during suggested sleep: "Your nausea and vomiting are no more."

The subject was in the state of suggested sleep for 15 minutes and woke up without a feeling of nausea or an urge to vomit; neither the nausea nor the vomiting recurred after awakening.

The aforesaid studies testify to the possibility of influencing the state and activity of the vomiting centre by verbal suggestion. In addition, the studies using apomorphine confirm the possibility of relieving by verbal suggestion also non-psychogenic vomiting, not only of a conditioned reflex nature but also unconditioned, both exogenous and endogenous. Such, for

example, is the vomiting that occurs after an operation as a result of chemical anaesthesia and vomiting during the toxemias of pregnancy, which shall be discussed below.

ACTIVITY OF INCRETORY AND EXCRETORY GLANDS

The cerebral cortex also influences the state and activity of the endocrine apparatus. We shall now consider the question of the possibility of influencing the *endocrine system* by suggestion. First of all, it is necessary to note the frequently encountered various cases of the psychogenic form of hyperthyroidism. Ignoring the possibility of psychogenia physicians in these cases often uselessly resort to various types of symptomatic treatments, sometimes even to surgical interference. However, psychotherapy may be very beneficial in these cases.

We shall begin with considering a very severe hyperthyroid case observed by our co-worker Z. Kopil-Levina in 1934. This case convinced us of the possibility of a psychogenic form of the disease for which psychotherapy, is the pathogenetic method of treatment.

1. Patient K., 32 years old, entered with the diagnosis of a violently developing form of hyperthyroidism, phenomena of severe intoxication and acute exhaustion (expressed in Basedow's syndrome). The patient was urgently hospitalized in a surgical clinic and was assigned for an operation. It was impossible to operate on the patient, however, because of her extreme agitation before the impending operation, her motor ecxitement and "fear of death on the table." In order to "relieve her nervousness" she was referred to a clinic of neuroses where she stayed for 6 weeks. Explanatory psychotherapy and physiotherapy proved futile. Because of the aggravation of her condition the patient was sent to a psychotherapeutic department of a dispensary to be prepared for surgical interference.

An examination revealed acute exhaustion, the mucous membrane of the lips and the ends of the fingers were cyanotic, the thyroid gland was markedly increased, she had pronounced symptoms of cardiac decompensation, tachycardia (from 130 to 150 beats per minute), considerable exophthalmus, shiny eyes, positive symptoms of Graffe and Mebius, and increased hyperhidrosis. Arterial pressure 145/50 mm., basal metabolism increased to 120 per cent. The patient was emotionally labile, anxious and depressed; she considered herself hopelessly sick. She believed to have fallen ill in 1932 when her husband died of a grave and protracted disease and was soon followed by the illness and death of her only daughter. At first the patient noticed she was becoming unusually irritable, had crying spells, pains in the region of the heart, palpitation, subfebrile temperature and, since her daughter's death, a swelling in the front of her neck, increased thirst and perspiration; besides, all these symptoms developed rapidly. Owing to this, she was put on a second-class invalid list and was referred "for a surgical operation because of danger to her life."

Psychotherapy was administered during suggested sleep and was followed by one-hour sessions of suggested rest (under dispensary conditions). She happened to be very suggestible, which was apparently due

to the tone of the cerebral cortex weakened by the ailment. It was suggested to her not to take her past experiences to heart and to be confident of recovery; she was also told she did not need an operation, that she would be able to sleep well at night, etc. At first the sessions were conducted daily and it was observed that during suggested sleep the pulse slowed down to 90 and that it remained on a level of 110 in the post-hypnotic state. After the third session the patient noted an improvement in her general condition, she slept well and her spirits rose. She stated that she now "hoped to get well." After the sixth session her dyspnoea sharply decreased and she was generally reassured. She was even ready for an operation if need be. Her exophthalmus was reduced and after the 9th session her neck measured 2 cm. less; her pulse went down to between 80 and 90.

A total of 15 sessions with subsequent suggested rest (of 1 to $1^1/_2$ hours) after each session were conducted. As a result, the entire symptom complex was removed, the gaseous exchange and the temperature were brought down to normal, and the thyroid gland was considerably reduced in size. The patient gained $4^1/_2$ kg. Six months after the treatments she felt generally good, was able to cope with her work, had no complaints, and her thyroid gland did not increase in size. For the following 3 years the patient was "actually well and did not apply to any physicians."

An analogous case was observed in the same dispensary; it was one of a sharply pronounced psychogenic hyperthyroidism in a man 39 years old who was also cured by psychotherapy.

These observations served as an impetus for special investigations conducted by our associate M. Kashpur on a wider scale and aimed at ascertaining the significance of psychogenia in the development of thyrotoxicoses and the possibility of administering psychotherapy in these cases.

The following case shows the influence of suggestion in a derangement of the functions of the endocrine-vegetative system.

2. Patient K., 16 years old, complained of attacks of inexplicable fear during twilight which drove him to distraction. During the rest of the day he was melancholic, depressed, generally weak, totally incapacitated and unable to sleep nights. He could sleep only during the day and not very well at that. Ambulatory treatment (preparations of bromine and valerian, sponge-baths, galvanization of the spine and massage of the prostate) and psychotherapy by persuasion proved useless. Treatments administered by neuropathologist were as futile. Two months after the onset of the ailment the patient's condition grew worse: he developed suicidal tendencies, had spells of hysterical crying, "caused by melancholy," at night and by his behaviour tormented his mother and neighbours who asked that "he be taken away."

Hypnosuggestive therapy was administered. The first 7 sessions induced only drowsiness; during these sessions it was suggested to him that he had no more fear and was no longer melancholic, and that his peace of mind and nocturnal sleep were restored. All of the patient's symptoms grew weaker, though they did not disappear, while his insomnia continued. Sound sleep appeared for the first time after the 8th session; all of the symptoms tormenting the patient disappeared, the latter grew cheerful and his efficiency was restored. A total of 11 sessions was conducted.

The patient was kept under observation for a period of one year with no relapses observed (observation by V. Shatsky, 1926).

The coincidence between the onset of the ailment and the development of the signs of puberty warrants the assumption of a connection between the functional derangement of the higher nervous activity and this period in the development of the organism. This assumption is based on the statements made to this effect by A. Ivanov-Smolensky (1949) who, in considering the conditions of the development of pathological states in the higher nervous activity, emphasized that, according to the data of the Pavlovian school, distinct but usually rapidly passing and quite reversible changes in the higher nervous activity are also observed during endocrine-vegetative reorganizations of a purely physiological and not pathological nature. This case can apparently be placed precisely in that category.

It will also be observed that the pathogenesis of Dercum's disease may be similarly based on psychogenia. The following is a picture of the development of this disease observed by I. Velvovsky in the Nervous Propaedeutic Clinic supervised by us; this disease was also successfully cured by psychotherapy.

3. Patient K., 35 years old, was attacked, beaten and threatened with death. This distressing experience turned his hair grey within a few days, and some time later he developed a typical picture of Dercum's disease with numerous separate lipomas and large and very painful folds of fat. Several sessions of psychotherapy were conducted during suggested sleep; the suggestions were aimed at generally reassuring the patient, making him forget the attack and at relieving his insomnia, anxiety and fear. The patient was reassured, his sleep was completely restored, the folds of fat and lipomas considerably decreased in size and the pain completely disappeared.

Thus, a derangement of the cortical dynamics caused by an overstrain of the basic cortical processes, intoxication, exhaustion of the cortical cells, etc., may manifest itself in the form of certain endocrine disorders which can be eliminated by verbal influence aimed at removing the disorders of the cortical dynamics.

The activity of the *mammary glands* is strongly influenced by the cerebral cortex. "There can be no doubt," says V. Bekhterev (1906), "that the secretion of milk is under the influence of cortical impulses." He cited his observations in which "the milk ran from the nipples in streams under the influence of corresponding psychogenic factors alone." According to Bekhterev, the "psychical phenomena accompanied by a pleasant feeling aid in an increased swelling of the mammary glands and a more abundant secretion of milk, whereas contrary affects lead to a decrease in the secretion of milk, while sudden psychic influences, such as fright, even stop it entirely. Thus, M. Nikitin's experiments (V. Bekhterev's laboratory) conducted on sheep during the period of lactation and keeping kymographic records of the drops of milk (by means of glass canulae inserted in the ducts of the lactic glands) found that stimulation by pain, as well as by extraordinary light or sound (flash of magnesium, report of a pistol) stopped the secretion of milk. Contrariwise, the sight and voice of a lamb immediately evoked an increased secretion of milk.

There are indications, says V. Bekhterev, that "not only the amount but also the quality of milk undergoes changes under the influence of psychic factors, especially a depressed mood."

It is furthermore well known that after childbirth women are frequently upset over the small amount of milk insufficient to feed the baby and sometimes by its complete absence; at times the mammary glands, on the contrary, sharply swell up, which condition is accompanied by acute pain and may make normal suckling impossible.

It is but natural to ask if it is possible to influence the state of lactation by corresponding verbal suggestion.

Clinical practice shows that it is actually possible thus to provoke changes in the activity of the mammary glands and to cause both hyper- and hypolactation or even a complete cessation of lactation. The following are two typical observations made by us jointly with K. Lavrova.

1. Patient N., 36 years old, was hospitalized with radiculitis. While suckling a 3-month-old baby she had received unpleasant information, was greatly upset, lost her appetite and sleep and cried a great deal. The following day she discovered she had much less milk; pressure on her mammae brought out but a few drops. Anxiety for the child and increased pain aggravated the condition of the patient still more. An anxious and dejected state with obsessive ideas of a depressive nature developed. The persuasions of her husband that he had been dismissed from work by mistake and had been reinstated failed to reassure her. Explanatory psychotherapy produced no effect. Three sessions of verbal suggestion of corresponding content conducted during a suggested drowse restored the patient's peace of mind and the normal secretion of milk.

2. Patient B., 26 years old, was brought to the hospital in an ambulance with a "post-parturition psychosis." The patient had a 3-month-old baby whom she gave only her right breast because of a mastitis of her left mammary gland on which she had been operated twice. During the second operation, performed under strong excitement, the general condition of the patient grew much worse: she was haunted by thoughts of death, "groundless anxiety" and an inexplicable "desire to go somewhere"; it was therefore decided that she stop nursing the baby. But the discontinuance of suckling and a tight bandage for a period of $2\frac{1}{2}$ weeks did not decrease the amount of milk secreted by the healthy mammary gland. When the patient entered the hospital her left mammary gland was inflamed, oedematous and very painful to touch. The scars had two fistulas.

Psychotherapy was administered in the form of motivated verbal suggestions during a suggested drowse. Peace of mind and cessation of lactation were suggested. The day after the first session the secretion of milk decreased and the bandage was dry for the first time during the night. Under the influence of the subsequent sessions of suggestion, the fistulas quickly healed and the secretion of milk from both mammary glands discontinued. The patient was discharged in good condition.

We must add to this a case of a 32-year-old patient who abundantly secreted milk from both mammary glands continuously for a period of four years after parturition; the derangement had been caused by serious family trouble she had had during parturition. In the course of four sessions of psychotherapy during suggested sleep (suggestion of complete

calm and forgetfulness of the trouble experienced during parturition) this ailment was relieved.

All this illustrates disorders of the functions of the mammary glands under unfavourable second signal influences and negative emotions, on the one hand, and positive effects of psychotherapy administered during suggested drowsing, on the other. Psychotherapy proved successful in two different disorders of the functions of the mammary glands: the discontinued milk secretion was restored to the first patient, its excessive secretion was discontinued in the second patient.

Many such observations have been recorded. V. Zdravomyslov (1949) did extensive work in this direction. Numerous analogous studies were recently made by M. Miloslavsky (1954).

Verbal suggestion made either in the waking state or during suggested sleep can relieve uterine haemorrhages of a psychogenic nature, as well as provoke them. This fact was first noted by N. Kolsky (1887).

The following examples show how psychogenic menorrhagias were relieved by verbal suggestion.

1. Patient M., 18 years old, complained of protracted menses which had subsequently developed into continuous and persistent haemorrhages. The therapeutic measures including defloration and an *abrasio* test operation produced no effect. An anamnestic interview revealed serious family trouble which had lead to the onset of menorrhagia. Three sessions of psychotherapy with corresponding suggestions were conducted during suggested sleep, relieving the menorrhagia and making it possible to regulate the subsequent normal menstrual activity (observed by P. Istomin, 1929).

2. Patient G., 35 years old, had suffered from extensive and persistent uterine haemorrhages accompanied by acute pain for a period of three years. Treatments in a number of clinics proved useless; the patient felt somewhat relieved every time a new method of treatment was used and she was told "this will help you"; subsequently, however, her former condition recurred.

At a health resort a physician once told her: "You will feel better in about four months, but your ailment is so serious that a single course of health resort treatments will not help you and you must come again next year." As a matter of fact, the patient felt relieved four months later, but only for a month and a half; this was followed by a new exacerbation of the disease and was accompanied by greater pain. In recent months the patient continued getting worse: she had profuse haemorrhages and was extremely emaciated; the erythrocyte count was 3,600,000; haemoglobin 26 per cent.

In connection with this, physicians prescribed an immediate extirpation of the uterus and ovaries. The patient applied to a psychotherapeutic dispensary of her own accord.

The anamnesis revealed that during her menstruation three years previously she rode the footboard of a crowded railway carriage late in the evening and was very much worried lest she catch cold in her sexual organs. The following night her menstruation developed into a profuse haemorrhage with acute pain. The haemorrhage had never ceased since.

Psychotherapy was administered in a light drowsy state and the following suggestions were made: "Your ailment is a result of fear, anxiety and autosuggestion; it is all gone now, you will have no more haemorrhages or pains and everything will be all right." After the session the patient said she "felt a different person, she had no more pains, the pressure in the lower part of the abdomen disappeared and she had a feeling of lightness and ease." She walked home by herself and, as she later said, "the farther the better," climbed to the fifth floor which she had been unable to do without help since the beginning of her ailment. The haemorrhages and pains discontinued the same day directly after the session of suggestion. One and a half months later the patient felt very good and went to the Crimea and the Caucasus where she climbed mountains; her menstruations became normal. She was under observation for six years, her menses were normal and her troubles and grievances no longer affected them (observation by N. Varen).

Thus, in this case it required only one session of psychotherapy radically to remove a serious ailment determined by psychogenia and developed in a person with an anxious and nervous character apparently belonging to the strong variant of the weak general type of nervous system.

The *pernicious vomiting of pregnant women* which usually ends with a cessation of pregnancy, but sometimes results in death if no timely aid is rendered, is very well known. This very tormenting and debilitating vomiting in addition to other distressing symptoms forces obstetricians to search for various conservative methods of safeguarding the pregnancy. But there is not a single effective pharmacological remedy for these cases. Several theories of the origin of this grave condition have been advanced but not one of them has been accepted; the "toxic" theory is also hypothetic.

The sporadic cases in which vomiting of pregnant women was successfully treated by verbal suggestion incline many investigators to consider these phenomena psychogenic. It will be noted that the possibility of influencing the somatic processes by psychic means were until recently rejected *a priori.*

Our observations over many years indicate that of all methods of conservative treatment of this ailment verbal suggestion is the only means which in the overwhelming majority of cases not only terminates vomiting, but also removes the other concomitant grave symptoms on the part of the endocrine-vegetative system. Since no proper importance has thus far been attached to this form of therapy for vomiting of pregnant women we deem it necessary to cite several typical examples of positive influence exerted in these cases by verbal suggestion during suggested drowsing with subsequent long-continued suggested rest in hypnotic sleep.

The first positive effect of verbal suggestion in a case of severe vomiting of a pregnant woman was observed by us as far back as 1912.

Psychotherapy was successfully administered by our associate M. Paikin (1930), by us jointly with F. Tseikinskaya and R. Shlifer (1930, 1936, 1941, 1949) and by obstetrician I. Tsvetkov (1941). This impelled us to devote considerable attention to the method of treating vomiting of pregnant women by suggestion and persistently to put it into practice.

The following are the most instructive of these observations which we illustrate by corresponding diagrams.

1. Patient A., pregnant, 30 years old, with very grave and persistent salivation; seventh week of the twelfth pregnancy; the last eight pregnancies were discontinued because of the salivation since no treatments had proved of any avail. The first session of psychotherapy conducted in a drowsy state brought considerable relief. The subsequent two sessions stopped salivation, and the patient concurrently felt better. Gave birth at term (Fig. 67) (observation by M. Paikin).

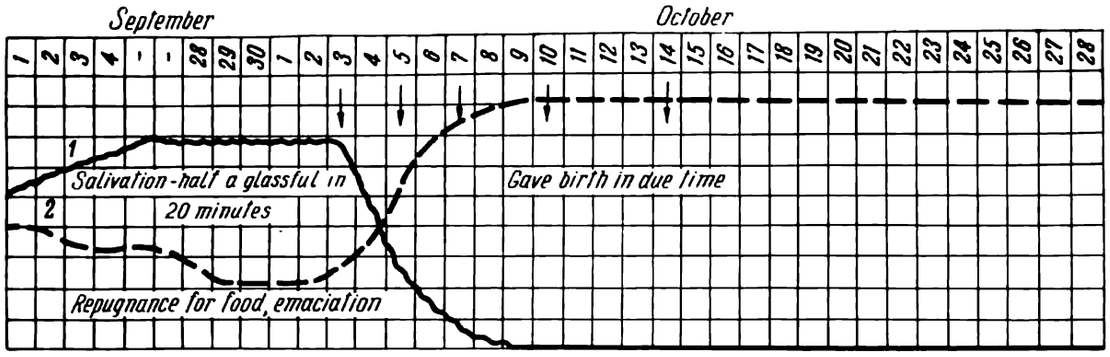


Fig. 67. Diagram showing efficacy of hypnosuggestive therapy in a case of toxemia of pregnant subject A.

1—salivation; 2—patient's condition (rise of curve signifies improvement). Arrows indicate sessions of hypnosuggestive therapy.

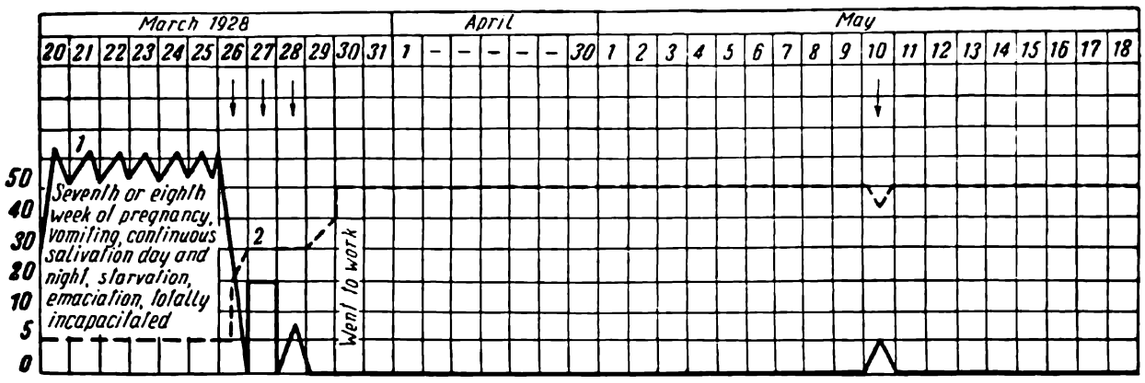
2. Patient B., 27 years old, applied to the dispensary in the eighth week of her third pregnancy (the first two were discontinued artificially because of salivation and vomiting). Continuous salivation day and night, vomiting from fifty to sixty times per day, starved, emaciated and totally incapacitated.

A light trance was induced and a suggestion that she would discontinue vomiting was made. The result was favourable: the salivation greatly diminished and the patient did not vomit until the following morning. Next day she vomited only 20 times, but felt much better. After subsequent sessions vomiting and salivation completely ceased and the patient acquired an appetite. On the fifth day after the beginning of the treatments the patient went to work. The following episode is of some interest: throughout the period of vomiting the patient slept in her bed, but shortly before the beginning of psychotherapy she started sleeping on a couch and slept on it for some time; but as soon as she started sleeping in her bed again vomiting recurred. One session of verbal suggestion stopped it. As we see, in this case we dealt with a conditioned vomiting reflex connected with a definite situation during which the ailment developed and became fixed (Fig. 68).

The following is a very instructive case in which the positive effect was also due to psychotherapy.

3. Patient A., 22 years old, pregnant for the second time (first pregnancy was discontinued because of vomiting), began vomiting in the eighth week of her pregnancy; by the tenth week she vomited from 30 to 40 times a day. She was hospitalized, was administered bromides, autohaemotherapy, and chloral hydrate which brought some relief and subsequently seemingly positive results. But the general weakness and aversion for food, according

to the patient, never left her. After discharge from the hospital vomiting recurred (from 30 to 40 times in 24 hours, day and night) and the patient had the same aversion for food. Pharmacotherapy proved useless: the patient was bedridden, had frequent fainting spells and continued losing weight. One of the obstetricians proposed discontinuation of the pregnancy, and an operation was prescribed. On advice of another obstetrician the patient's husband applied for psychotherapeutic aid.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Seventh or eighth week of pregnancy, vomiting, continuous salivation day and night, starvation, emaciation, totally incapacitated
went to work

Fig. 68. Diagram showing efficacy of hypnosuggestive therapy in a case of repetitive vomiting of pregnant subject B.

1—frequency of vomiting in 24 hours; 2—patient's condition (rise of curve signifies improvement). Arrows indicate sessions of hypnosuggestive therapy.

The first session of psychotherapy was conducted on the eve of the operation: a state of rest and then of drowsiness was induced. The following formula of suggestion was used: "You are resting, there is no more vomiting, you can eat everything, you have no aversion for food, on the contrary, you want to eat, food gives you an appetite, you retain the food consumed, you are sure you will retain your pregnancy and that your parturition will be safe. And so there is no more vomiting, you feel good and you eat with increasing gusto." Upon awakening the patient felt good, ate two sandwiches and a little broth with apparent enjoyment. There was no vomiting that day, the patient took her meals and felt satisfactory all day long. Subsequently there was no vomiting on session days, the appetite improved, the patient ate more food and felt increasingly better. On the days when there were no sessions of suggestion vomiting occurred only during attempts to eat.

It is interesting to note the results of an accidental three-day break in the psychotherapy: the patient was anxious, every attempt at eating during the day provoked vomiting and her night sleep was disturbed "for fear vomiting may recur." Finally, a regular session of suggestion was conducted, following which there was no vomiting all day long and the patient ate well. Subsequently, five more sessions at different intervals of time were conducted with a suggestion that there would be no more vomiting or nausea. Vomiting ceased and the patient felt good. In the beginning of the following month the patient sometimes vomited once in the morning but felt good and had a good appetite. Upon the insistence of her husband one more session of suggestion was conducted at the end of the month and vomiting ended altogether. She gave birth at term. It will be observed

that the acetone contained in the urine disappeared in the fifth week of psychotherapy. Thus we see that psychotherapy produced a positive effect, preserved the pregnancy and did away with the necessity of surgical interference (Fig. 69).

These observations indicate that suggestion can exert an effective influence not only on psychogenic disorders, but also on normal endocrine-vegetative reorganizations taking place in the organism of pregnant women. It should be added that V. Zdravomyslov observed the same effect produced by the treatment of toxemias of pregnancy (1930, 1938).

It is customarily believed that if verbal suggestion removes a disorder (say, pernicious vomiting of a pregnant woman) the latter is psychogenic. My associates and I observed about 115 pregnant women with endocrine-vegetative syndromes of various complexity and with choreic hyperkinesis (Y. Voronina); a positive result of psychotherapy was noted in 84 per cent of the cases.[1] Obstetrician M. Vigdorovich (1949) used the hypnosuggestive method for a period of 16 years on about 400 patients with toxemias of pregnancy and observed positive results of psychotherapy in 90 per cent of them. All cases, in which no psychogenia was found, demonstrated a clear superiority of psychotherapy and uselessness of drug therapy.

Thus, by means of verbal suggestion it is possible to relieve hormonal and neurohumoral disorders in the organism. There can be no doubt that this method not only removes the pathologically firmly fixed vomiting reaction and other concomitant symptoms, but also produces thorough-going biochemical changes in the organism of pregnant women.

In his Master's thesis (1941) S. Yoffe made the first attempt objectively to demonstrate the changes in metabolism really taking place in toxemias of pregnancy under the influence of verbal suggestion of corresponding content during suggested sleep. Thus, the ten patients with toxemias of pregnancy he had observed were relieved of hypoglycaemia in the course of treatments, the disease beginning to weaken already after one or two sessions of psychotherapy. All this testifies once more that the biochemical processes in the human organism, like the neurohumoral relationships regulated by the cerebral cortex, can be modified by verbal influence.

RESPIRATION, CIRCULATION, CUTANEOUS TROPHICS

The investigations of K. Bykov's associates and our own observations (1930) have shown that the function of *respiration* also changes and is regulated by the conditioned reflex mechanism and that in this case formation of firmly fixed dynamic structures is possible. The success of the influence exerted on them by verbal suggestion clearly demonstrates their functional character and conditioned reflex nature.

Thus, according to D. Shteiman and M. Ksendzovsky (1938), as well as Y. Britvan (1940), it is possible to provoke various forms of periodical respiration by verbal suggestion during suggested sleep; this may be important in ascertaining the genesis of disorders of the respiratory rhythm.

[1] See our contribution to the symposium *Problems of Cortico-Visceral Pathology* under the editorship of K. Bykov, Russ. ed., 1949.

The participation of the cerebral cortex in the development of attacks of asthma and the conditioned reflex nature of the latter are confirmed by daily observations. This is proved, for example, by the fact that, according to A. Triumfov (1949), an attack of bronchial asthma was provoked in a patient not only by his usual allergen—the odour of a rose—but also by a picture of this flower.

Our observation of a patient, who suffered from a serious form of asthma for 18 months and whose attacks developed each time after influenza and not infrequently under the influence of various allergens of an olfactory nature, is not devoid of interest. The patient rid herself of the ailment after a few sessions of verbal suggestion during a suggested drowse.

1. Patient S., 45 years old, suffered from attacks of bronchial asthma which had developed during her climacteric. The attacks had begun four years previously and manifested themselves in the form of a bad cough, palpitations and a state of asphyxia which lasted from 2 to 3 hours. In the beginning the attacks appeared at intervals of several months, but as time wore on they recurred every 5 or 6 days. Pharmacotherapy proved useless. She was allergic to odours (toilet water, ether, etc.).

Of late, the attacks had become still more frequent, recurring every 3 or 4 days, and were harder on the patient because they occurred most frequently at night. At the same time the patient developed a fear of the attacks, and was afraid of the least movement of air, and of the odour of food, soap, alcohol, powder, and iodine, because "all that could provoke an attack." She was also afraid to sleep with the doors closed because "if she had an attack it would be hard for her to breathe."

A session of rational psychotherapy brought a modicum of relief and a hope of recovery. The subsequent sessions of suggestion conducted in a drowsy state considerably helped the patient, who was now able calmly to endure odours (toilet water, iodine, alcohol, powder, and tobacco), was no longer afraid to sleep alone in a room or to go out on to the balcony, and started housekeeping. After a course of treatments (6 sessions of suggestion) she began to go out into the street. She felt good and tried to regard calmly the things she was formerly afraid of. Positive catamnesis for 2 years. With light relapses occurring from time to time the patient is able to cope easily by herself.

The example cited below is of interest as regards the mechanism of the onset of this ailment.

2. A woman working in the field was suddenly frightened by a fire which broke out in the village where she had left her small children. Fearing for the safety of her children, she ran panting uphill for 1.5 kilometres, before she could finally ascertain that the fire had broken out at the other end of the village, and dropped completely exhausted. Soon after this incident, she began having attacks of asphyxia provoked by negative emotions, the attacks subsequently taking the form of asthma which lasted for over 5 years. A course of psychotherapy was administered: 10 sessions of suggestions during suggested sleep put an end to the attacks (observation by Y. Katkov).

The following is another observation also testifying to the high efficacy of psychotherapy in this type of ailments.

3. Patient P., 43 years old, second-class invalid, was undergoing sanatorium treatments ("Zvyozdochka" Sanatorium, city of Khosta) for bronchial asthma, myocardiodystrophy, circulatory insufficiency and chronical benign polyarthritis. He complained of frequent severe attacks of asphyxia mostly at night, coughing, pain in the joints of the arms, increased irritability and emotional lability which had made their appearance 8 years previously after the patient was shell-shocked at the front. When the patient was excited the attacks of asphyxia occurred three, five, even seven times a day, this condition lasting for a period of four to six weeks.

When an attack begins the patient makes his own injection of 0.5 ml. of adrenalin, 1 ml. of caffeine, or 2 ml. of camphor after which the attack ceases for some time, though it is still hard for him to breathe (difficult to inhale, constant wheezing). Objectively: in the lungs during percussion—bandbox sound, during auscultation—rigid breathing, dry wheezing, mobility of the lower borders of the lungs limited; roentgenoscopy: lungs emphysematously distended, hili with adhesions are wide and dense, a small cardiodiaphragmatic adhesion on the right.

A session of verbal suggestion on the conscious level was conducted after which the patient felt some relief: he began to breathe easier and acquired a faith in recovery. The following session conducted with the patient in hypnotic sleep lasted for one hour. The suggestion made was: "The attacks of bronchial asthma have stopped completely." Two days later another session was conducted. The patient felt generally good with the suggestion made during hypnotic sleep completely effectuated after the very first session: the attacks of bronchial asthma discontinued altogether. The positive therapeutic effect was fixed during the subsequent 3 sessions conducted with the patient in hypnotic sleep. Throughout the patient's subsequent stay at the sanatorium the attacks of asthma never recurred, the wheezing disappeared, the patient began to breathe freely, he no longer had pains in the joints, was not irritable and developed a cheerful mood putting on 3 kg.; he was discharged in good condition (observation by I. Zhukov, 1952).

The foregoing example is interesting in that the former varied ambulatory and hospital treatments (implants of the liver and the spleen by Rumyantsev's method, Vishnevsky novocain block, injections of aloe twice a day [a total of 60 injections], theophedrine, antasthman, adrenalin with caffeine, and camphor, dry cups, etc.) produced no positive therapeutic effects, whereas the very first session of verbal suggestion during suggested sleep put an end to all attacks of bronchial asthma. As we see, the physicians failed to take into consideration the psychogenesis of the disease and the symptomatic therapy administered by them proved futile.

The observations conducted by P. Bulatov and P. Bul (1953) deserve mention; these investigators produced typical attacks of bronchial asthma in asthmatic patients by a corresponding suggestion during suggested sleep. The attacks were attended by all of the endocrine-vegetative manifestations characteristic of them. By contrary suggestion the attacks thus provoked were immediately terminated.

Thus, allergic diseases, including bronchial asthma, which represent a picture of a fixed pathological conditioned reflex, very well yield to hypnosuggestive therapy. This is apparently due to the fact that, as Y. Frolov observes (1949), the lungs possessing rich interoception "serve as a sort of

screen on which the most complex cerebral processes are projected." Like all the other internal organs the lungs can also take part in the formation of conditioned reflex bonds. It is by virtue of these temporary bonds, according to Y. Frolov, that under certain conditions a pathological mechanism underlying bronchial asthma may be formed. Frolov believes that an attack of bronchial asthma is "a typical conditioned interoceptive reflex which fixes the once established relations in the cerebral cortex"; the attack may be provoked by the fact that "two foci of excitation arising simultaneously in the cerebral cortex and in the centre of regulation of bronchial tone coincide in time. According to the law of conditioned reflexes, a temporary bond is formed between such foci."

According to L. Vasilyev and M. Chernorutsky (1953), the pathogenesis of bronchial asthma is based on the emergence of a pathological dominant in the nerve centres, which regulate the muscular and glandular functions of the bronchi. This subcortical pathological dominant apparently corresponds to a cortical "trigger point." Whereas the subcortical pathological dominant can be influenced by pharmacological preparations and physiotherapeutic means, the cortical trigger point must be influenced by psychotherapy. According to this, the very attack of bronchial asthma may come about as a conditioned reflex to external and internal pathogenic stimulations of the first or second signal systems.

The studies conducted by K. Bykov's laboratory (1927) show that the respiratory function has its cortical representation; his associates G. Konradi and Z. Bebeshina produced changes in the character of the respiratory ventilation by conditioned reflex means. It will also be observed that Bekhterev (1907) established the possibility of elaborating a respiratory conditioned reflex in the dog.

It follows that on this basis conditions can be easily set up for the development of the "neurosis of the lungs," which bronchial asthma essentially is. Y. Frolov emphasizes that the expiratory phase in man is particularly "overloaded" because it underlies the entire multiform function of speech. It is precisely for this reason, in his opinion, that it is the first to suffer. A clinical picture of the disease is not infrequently observed only 6 or 7 months after the trauma. It is but natural that the results may manifest themselves in the form of derangements of the cortical regulation of any executive apparatus and in many other somatic functions. In this case it expresses itself in a disorder of the tone of the smooth muscles of the bronchi.

Thus we see that one of the possible results of the influence exerted on the cortical dynamics by verbal suggestion may be the liberation of the functions of the physiologically lower divisions of the central nervous system and that this may be achieved by inhibition of the higher divisions which normally regulate their work.

The literature on suggestion and hypnosis contains numerous indications of the possibility of influencing the activity of the heart, the state of the *cardiovascular system* and, in particular, of the possibility of influencing changes in the state of the vasomotor apparatus by verbal suggestion.

As an example of a local derangement of the circulation produced by direct verbal suggestion we can cite the well-known experiment of Charcot conducted by him in the eighties of last century: to a subject who was in

a state of suggested sleep it was suggested for several days running that his right arm was swelling, that it was becoming oedematous, growing heavier than the other arm, hard, purple and cold. As a matter of fact, several days later the subject's right arm grew heavier than the left and became hard and purple, its temperature dropping by 3^0.

I. Tarkhanov (1881) cites an observation in which a person voluntarily provoked an acceleration of the heart rate without changing his respiratory rhythm. Mosso (1887) established plethysmographically that during mental work the volume of the forearm decreased because of a constriction of its vessels, while the vessels of the brain were dilated. K. Nagel (1889) showed that stimulation of the skin by a mustard plaster, as well as the idea of this alone, produced a considerable rise in intracranial pressure. Using capillaroscopy L. Koreisha (1928) found that in neuroses the condition of the vessels changes under the influence of verbal suggestion. S. Botkin, like I. Tarkhanov, admits the possibility of a direct bond between the cerebral cortex and the subcortical centres through which the influence on the rhythm of cardiac activity is exerted.

The possibility of forming conditioned reflexes to the activity of the cardiovascular system has been known for a long time. A conditioned cardiac reflex was first obtained by Chaly (1914)[1] in V. Bekhterev's laboratory by combining in time a pain stimulation of the skin (unconditioned stimulus) with the sound of the interrupter of an inductor. By using an electrocardiographic analysis L. Vasilyev and V. Poderny (1930) later observed conditioned reflex sympathicotropic changes. Vagotropic changes in the activity of the heart were obtained by conditioned reflex means by G. Sorokhtin, K. Turgel and O. Minut-Sorokhtina (1934). N. Krasnogorsky (1935) observed conditioned reflex tachycardia and bradicardia in adolescents.

Conditioned heart reflexes were subsequently elaborated and reactions to various conditioned reflex influences and pharmacological agents (morphine, nitroglycerine, adrenalin, strophantine, etc.) were registered electrocardiographically in the laboratories headed by K. Bykov (V. Delov, 1939; Y. Petrova; G. Samarin, 1942; N. Levitin, 1947; K. Smirnov, 1940, 1941, et al.). Having established the possibility of influencing the activity of the cardiovascular system through the cerebral cortex, K. Bykov emphasizes that the influences of the cerebral cortex on the heart are not confined to its chrono- and ionotropic changes but spread throughout the myocardium and the conducting system. Cortical influences on the heart are understandable, says I. Pavlov, and the heart must adjust itself to all changes not only of the organism as a whole, but also of each of the organs.

The possibility of influencing the activity of the heart and the functional state of circulation by suggestion was also studied in A. Ivanov-Smolensky's laboratory. Thus, a rise in arterial pressure elaborated in adolescents by N. Kozin (1935) in response to a bell was subsequently also obtained by him in response to the word "bell" uttered not only by the experimenter, but also by the subject himself. Similar data were obtained by L. Kotlyarevsky (1936) during the elaboration of a conditioned bond with the heart (Danini-Aschner's phenomenon). The activity of the heart was decelerated not only

[1] Quoted from V. Bekhterev (1929).

in response to the bell but also to a verbal stimulus—"bradicardia." All these facts indicate that the cerebral cortex participates in the regulation of the blood pressure and cardiac activity.

We observed the following cases of a stable positive effect of treating certain functional disorders of the cardiovascular system, particularly paroxysmal tachycardia, by verbal suggestion.

1. Patient K., 46 years old, complained of attacks of paroxysmal tachycardia from which he had suffered for 19 years; he had from 10 to 15 attacks per day. Intervals without attacks were rare (up to 10 days). His pulse was 150 to 180. He dated the onset of his ailment from the tonsillitis he had had 19 years before with the first attack of tachycardia lasting 10 days. Subsequently, each time he contracted tonsillitis it was followed by a 10-day attack of tachycardia. There was a period of 7 years when he had no tonsillitis; since then the attacks of tachycardia had also become modified: they had become short (several minutes' duration) and rare.

The patient had suffered a number of psychic trauma during the Great Patriotic War. After the war the attacks gained in frequency and duration again, sometimes continuing for up to 10 days. Drug treatments (quinine) brought no relief. In recent years the attacks came while he was lecturing, which forced him to quit lecturing. Hence, he developed a fear of lecturing which became fixed and led to a state of extreme depression. In addition, he began fearing lest "he be dismissed from work for disrupting the lectures." Thus, one fear struggled against another. The patient characterized his state as an "eternal fear of attacks" and was therefore "always conscious and on the alert about the work of his heart." "He doubted everything." His night sleep was disturbed: it took him long to fall asleep, he slept very lightly, was irritable, was frequently desperate and lost a good deal of his efficiency. He was hospitalized in a therapeutic clinic, but the treatments administered there produced no noticeable results. Objectively: mitral failure (constriction and insufficiency), complete compensation.

We instituted psychotherapy. After the second session of suggestion during suggested sleep the big attacks ceased, but the fear of lecturing persisted, though "there were no more attacks during the lectures." After the sixth session the attacks became very rare, the fear of lecturing disappeared, the patient lectured freely and his night sleep improved. A total of 13 sessions was conducted with the 3 last sessions consolidating the positive effect of the treatments. During the 3 months of subsequent observation his catamnesis was positive: his spirits rose, his self-confidence returned and he "wanted to live and work." During that time the patient supervised a big scientific conference, published two scientific papers, lectured without difficulty and, if an attack ever occurred during a lecture, he continued lecturing without losing the logic of exposition or self-control. Attacks were very rare; he had two- and three-day periods without any attacks. The favourable changes produced in this case were confirmed by the internist (observation by Y. Katkov and B. Spivakov).

In this case we dealt with a neurotic ailment in the form of paroxysmal tachycardia in a patient apparently belonging to the strong and well-balanced type of nervous system weakened by infectious diseases and a series of psychic trauma. The disease was removed by verbal influence;

the patient's health was fully restored and he was returned to normal life and work.

2. Patient D., 38 years old, was brought to the department of neuroses on a stretcher in a serious state with complaints of attacks of palpitation, increased intestinal peristalsis, a feeling of chills, tremor of the hands and an obsessive fear of dying during one of these attacks. She believed herself sick for about three months and connected her ailment with an operation for mastitis; she had been very much excited before the operation; the first attack occurred soon after this excitement and now comes from two to three times a day. For fear lest these attacks occur more frequently and with greater force, the patient stayed motionlessly in bed, was fed from a spoon, voiced many complaints of a somatic nature, counted her pulse all day long, sighed deeply and was dejected. During the first days in the clinic she insistently demanded injections of camphor or other cardiac remedies. Explanatory psychotherapy administered on the conscious level produced no positive effect, but only calmed the patient for 5 or 10 minutes. After four sessions of verbal suggestion during suggested sleep she began to pay less attention to her heart, the attacks occurred less frequently, she started getting up and walking about, and doing little chores. After 5 sessions she was discharged in a satisfactory condition with the attacks of palpitation occurring once in 6 to 7 days, which she did not take seriously. Catamnesis: well and efficient for a period of 2 years (observation by A. Sosedkina).

As we see, this time a neurotic state with attacks of tachycardia appeared in a person apparently belonging to the strong unbalanced type of nervous system and developed according to the mechanism of autosuggestion based on fear of a surgical operation for mastitis. Five sessions of verbal suggestion during suggested sleep radically weakened this state, while subsequent work prevented its recurrence.

In conclusion we shall cite an example of psychogenic tachycardia.

3. Patient Z., 20 years old, bedridden in a state of complete prostration, pale, pulse 160, hardly answers questions. The ailment was caused by a grave insult hurled at him by a friend; at first it robbed him of his sleep and then provoked stubborn tachycardia.

Psychotherapy was instituted. A state of suggested sleep was induced and the patient was instructed to keep completely calm and forget his experience. Upon awakening he was quite calm and spoke about his grievance without any excitement; there were no reactions on the part of the heart, and tachycardia ceased completely. The obtained result proved positive and stable (observation by V. Kislov).

Since the cerebral cortex can influence the neurohumoral and metabolic processes occurring in the skin it follows that it is possible to form psychogenic disorders of the *cutaneous trophics* and to remove them by verbal influence on the cortical dynamics, i.e., with the aid of direct psychotherapy.

Of the older studies conducted in this direction mention should be made of the work of A. Zaitsev (1904) who observed oedema of the eyelids and numerous small cutaneous haemorrhages with a bloody-serous exudate in a patient. These phenomena were of a psychogenic nature and according

to his data could be stopped (as well as reproduced) by verbal suggestion during suggested sleep.

P. Nikolsky, dermatologist (1910), called attention to the possibility of a psychogenesis of certain skin diseases; he observed that a number of these diseases, such as eczema, nettle-rash, psoriasis, and nervous itch may emerge under the influence of emotions. According to the author certain skin diseases could also develop under the influence of suggestion and autosuggestion. Nikolsky states that in the treatment of these diseases many authors obtained positive results by suggestion under hypnosis.

Extensive experimental work was done in this direction by dermatologist A. Kartamyshev (1938, 1942) and his associates (L. Pototsky, I. Zhukov, et al.), and by N. Bezyuk (1939, 1941). Both A. Kartamyshev and N. Bezyuk recognize the possibility of psychogenesis of and successful psychotherapy for a number of skin diseases: eczema, skin itch, etc. They cite several examples from their practice.

Déjèrine (1912) observed the emergence of stable phenomena of a vasomotor, secretory and trophic nature under the influence of psychic trauma. Bünemann (1925) believes that psychic factors play a part in the development of certain forms of skin diseases. He thought that psoriasis, eczemas and furunculosis could be cured by psychotherapy.

The following examples illustrate the psychogenesis of certain dermatoses and the effect of psychotherapy.

1. Patient M., 27 years old, complained of a bald spot developing on the back of her head; it was the third one in her life and she had already had it for a period of one year; this phenomenon occurred each time she was under great emotional stress. The first time it happened was six years previously when upon return from vacation she found her father dying. Her father greeted her with the words: "If I were well I would have a lot to say to you." "I clenched my fists hard," said the patient, "and felt a spasm in my throat and a terrible itch all over the head." The following day the hair began to fall out producing a completely bald spot within three weeks. According to the patient, the physician who treated her seems to have said: "One emotional strain destroys the hair and another, no weaker one, restores it." Six months later after the sudden death of her mother the patient began to grow hair again. Subsequently, she had normal hair. Then, three years later, her child was scalded and very soon after her fright, experienced in connection with it, the patient developed alopecia areata again.

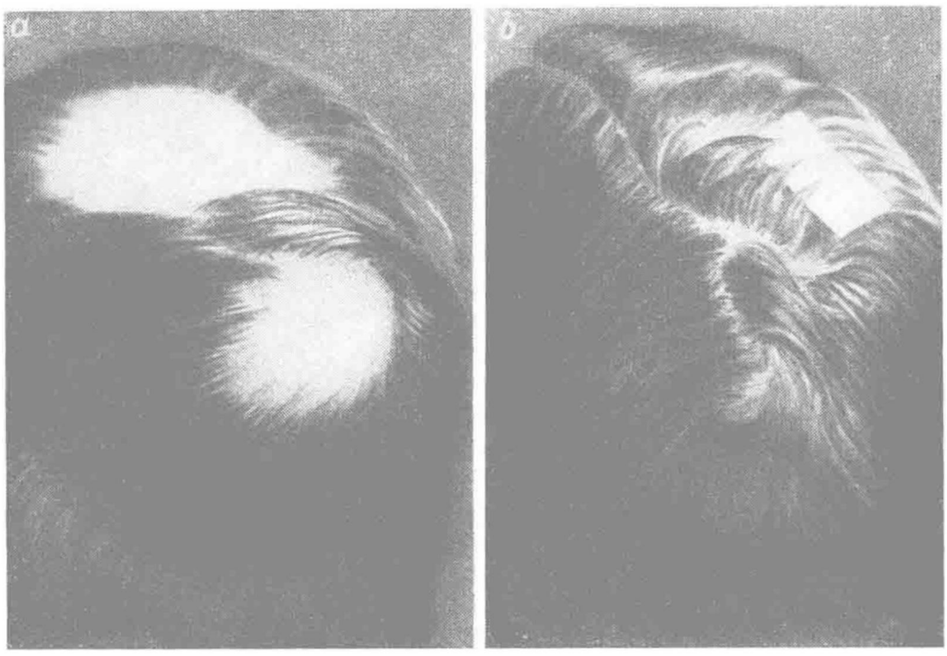
The following observations are interesting from the point of view of the effective treatment by verbal suggestion.

2. Patient M., 30 years old, complained of diffuse small and large bald spots of one month's standing on her head. According to the patient, her hair fell out after serious family trouble. She told us, she had had such bald spots, though to a lesser extent before; they usually followed considerable emotional stress.

Suggestions were made to the patient in a suggested drowse with subsequent long-continued suggested rest in hypnotic sleep (12 sessions). After the sessions of suggestion the normal hair on the head was completely restored (Fig. 70). We observed this patient for a period of 10 years; there were no relapses. In this case it is also interesting to note that the emo-

tional stress experienced by the patient afterwards no longer produced any baldness. We are inclined to explain this by the prophylactic suggestions which we made during the treatments (observation by F. Tseikinskaya).

3. Patient B., 43 years old, was admitted to the psychoneurological dispensary with weeping eczema on his lower extremities and a strong itch which interfered with the patient's sleep. He had suffered for 14 years; the usual pharmacotherapy did not help; diagnosis: epidermodermitis. After 6 sessions of suggestions in a drowsy state and subsequent long



a *b*

Fig. 70. Psychogenic alopecia areata.

a—before and *b*—after hypnosuggestive therapy.

suggested rest the eczema disappeared. Though it was impossible to disclose the psychogenesis in this case the therapeutic effect was complete nonetheless (observation by I. Murakhovskaya).

4. Patient K., 50 years old, complained of an unbearable itch of the skin in the hairy part of the head, which he had had for 10 months, dejection, irritability and loss of sleep due to the itch. He had been uselessly treated by various drugs. Objectively: the patient was affectively tense, impatient and irritable; had come to the psychotherapist in order, as he put it, "to try for the last time."

After an explanatory psychotherapeutic consultation, which gave the patient confidence in recovery by the hypnosuggestive method, 8 sessions of hypnosuggestive therapy were conducted in the course of 8 days. Deep hypnotic trances were rapidly induced; after each session the itch diminished and recurred less frequently during the day; this enabled the patient to work. In the mornings and before sleep, however, the itch increased causing irritability and insomnia. Gradually the itch decreased

and from session to session grew less intense. It lasted the longest in the evening. Towards the end of the treatment it ceased completely, the patient became less irritable and sleep was restored. Positive catamnesis for 3 years; the further fate of the patient is unknown. Diagnosis: neurotic state (skin itch) (observation by M. Kashpur).

The question arises: do not some of the so-called chronic incurable eczemas and other skin diseases, which are not subject to the accepted methods of treatment, belong to the category of emotiogenic diseases? And are they not "incurable" because of the improper approach made to them?

A positive effect of psychotherapy is also observed in psychogenic dermatoses. As a vivid example of this we can cite the result of treating warts by direct or mostly indirect suggestion on the conscious level and during suggested sleep, which was observed by us and a number of other Soviet (A. Manoilov, 1928; A. Breslav and Y. Zakamennaya, 1931; A. Kartamyshev, 1936, 1942, and N. Bezyuk, 1938) and foreign authors (Kraft-Ebing, 1897; Pech, 1923; Bloch, 1926-1927; Bonjour, 1924; Grumach, 1927; Müller, 1932, et al.).

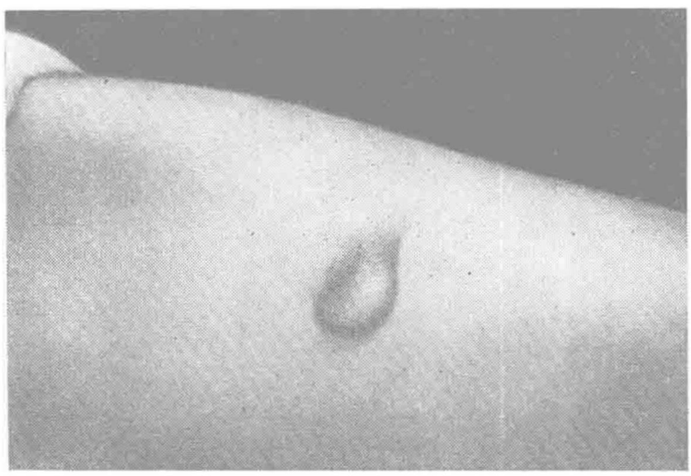


Fig. 71. Picture of second degree burn sustained through verbal suggestion during hypnotic sleep.

But despite the fact that there is an extensive literature on the question of the possible psychogenesis and positive results of treating certain forms of dermatoses by verbal suggestion, Soviet dermatologists, except A. Kartamyshev, N. Bezyuk and several others, display considerable indifference in this respect and have, until recently, contributed but little to the question of psychogenesis of various skin diseases and their psychotherapy.

The psychogenia of certain skin diseases and the success in treating psychogenic dermatoses by verbal suggestion can be explained mainly by influences coming from the cerebral cortex which determines the functional state of all tissues and organs.

Suggested burns resulting from corresponding suggestion during suggested sleep may be referred to the disturbances of cutaneous trophics and tissue blood supply arising under the influence of verbal suggestion. For example, from 2 to 4 hours after a suggestion is made that "the object (say, a coin) applied to the body is very hot and burns to the point of pain," a blister really appears, sometimes producing a picture of a second degree burn.

In his lectures of 1911-1913, N. Wedensky cites the following method of obtaining a suggested burn: a figure eight is drawn by a chip on the arm of a hypnotized person who is told that his arm is "cauterized"; an inflammatory process soon develops along the line where the cold chip contacted the skin.

We personally convinced ourselves of the reality of this phenomenon in the summer of 1927, when V. Finne conducted a special study in the presence of Professor M. Chernorutsky, Professor K. Povarnin and a number of other people.

Subject M., 35 years old, easily suggestible, was put by V. Finne into a state of suggested sleep after which a copper coin was applied to the inner side of her left forearm with the suggestion that it was a burning-hot metal disc; as a result the subject sustained a heavy burn and felt an acute pain.

After awakening, she was continuously watched by one of the physicians, member of the conference. According to the record of the observation, 25 minutes after the aforesaid suggestion and awakening from suggested sleep the skin was red at the point of the "burn"; 55 minutes later a swelling was observed; $2^1/_2$ hours later a white spot appeared in the centre of the "burned" spot and $3^1/_2$ hours later a blister was formed (Fig. 71).

By suggestion during suggested sleep P. Sumbayev (1948) produced various cutaneous trophic disturbances: "burns," "frostbite," "acute oedema," "rash," and "pigmentation."

V. Bakhtiarov (1928) described a case of suggestion of an imaginary blow to the outer surface of the right forearm during suggested sleep. Several hours later a bruise was observed at that spot. This study was made in the surgical clinic of the Saratov Medical Institute in the presence of Professor Krauze.

These investigations throw light on the "spontaneous" local bleeding ulcerations developed by the fanatics (the so-called stigmatics) described in literature.[1] All these phenomena provoked most diverse reactions. Thus, the vascular reaction E. Weber (1910) evoked by verbal suggestion was called "amazing" by Heyer. All these "incomprehensible" and "amazing" phenomena, including the stigmatic, find their explanation in the works of V. Bekhterev (1914), I. Tsitovich (1916), and V. Bekhterev and V. Myasishchev (1928) and, finally, become quite understandable in the light of I. Pavlov's teaching on the higher nervous activity.

All of the foregoing material shows that the cutaneous trophics can also be influenced through the cerebral cortex by verbal suggestions which, in some cases, produce dermatoses, bald spots, blisters, etc., and in others remove them.

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[1] *Stigmata* means signs. This word is usually employed to designate cutaneous symptoms appearing in some persons suffering from hysterical neuroses. Literature thus refers to local subcutaneous bruises arising during religious ecstatic states. Persons with such blood stigmata were called *stigmatics*.

CHAPTER XIV

COMPLEX UNCONDITIONED REFLEXES

> Instincts, as a detailed analysis reveals, are the same as reflexes only usually somewhat more complex in composition.
>
> *I. Pavlov*

INSTINCTS

Is it possible to exert a direct influence on instinctive activity by verbal suggestion? Is it possible by means of suggestion to influence the instinct of self-preservation or the sexual instinct and thus to reorganize these complex inborn reflex activities of the organism or in some way to modify them?

We are in a position to give affirmative answers also to these questions. We have repeatedly observed the possibility of directly influencing instinctive activity by suggestion.

There are cases when the life of man is in mortal danger, which sharply overstrains the basic instinct—the instinct of self-preservation. In a considerable number of cases this gives rise to a neurotic state which sometimes acquires the character of an obsessive, acutely experienced fear of death, persisting for many years.

The following examples show that the obsessive fear of death arising in this manner may be removed by verbal suggestion, the content of which will, of course, depend on the peculiarities of each individual case. In this way, the consequences of a psychic trauma are usually completely removed after which the instinct of self-preservation becomes normal again.

1. Patient O., 42 years old, complained of an inability to walk in the street by himself (through wide spaces in general) because he was afraid "of dying of a paralysis of the heart." In an attempt to walk by himself, the patient developed intermittent heartbeats, palpitation and an overwhelming fear of dying from cardiac arrest: "The heart will stop and I will drop dead." The constant anxiety and fear of death from paralysis of the heart had persisted for a period of 7 years.

The ailment began in April 1919 when the patient was sentenced to be shot by the White Guards. As a result of the fear of death he developed

acute palpitation, an intermittent heart rate and pains in the regions of the heart. The death sentence was repealed, but the palpitations and intermittent heartbeats continued. A month's treatments in a sanatorium had produced no effect; he could not bear being alone, and because of his palpitations would not venture to walk very far. Subsequently he took annual treatments in a sanatorium and a polyclinic with short-lived results. In the beginning of 1925 his palpitations began to decline and in September of the same year they ceased. The "fear of death from paralysis of the heart" remained, due to which he must always be escorted by somebody, since in an endeavour to walk alone he is always seized by overwhelming terror and palpitations, and thoughts of immediate death reappear.

An explanatory interview did not produce any changes for the better because mention of his heart excited him still more. A session of psychotherapy with the patient in a suggested drowse was conducted the following day. A suggestion was made to the effect that the patient had a strong heart and that he forget his experience of 1919. The day after, the patient observed a considerable improvement: he walked through the city streets and squares all alone having no palpitations, intermittent heartbeats or fear. The same suggestions were repeated with the patient in a deep drowse in the morning and the evening of the third day. After the fifth session, the patient went home without his friend escorting him since he decided to go home alone. In his letter the patient wrote: "The day after my arrival home I went to the polyclinic which is two kilometres away all alone at 7 o'clock in the evening. I was not afraid, though formerly I could walk only with an escort." "... If I ever have heart throbs or palpitations or anxious thoughts I begin to fight them, recalling your words," he continued. In subsequent letters he informed us: "I feel generally good, I make merry and am absorbed in my studies at the Communist University." One year later he visited us and told us of his well-being.

We shall now consider a not uninteresting case of attacks of an epileptic nature conditioned by an acute overstrain of the instinct of self-preservation.

2. Patient B., 25 years old, came in March 1929 with complaints of seizures beginning with a sensation of heat throughout the body, asphyxia, loss of consciousness and convulsions with a subsequent feeling of weakness and exhaustion. According to the patient, his attacks lasted from 15 to 20 minutes. He had fallen ill in 1925 under the following circumstances: a pill had got stuck in his windpipe and was extracted only 20 or 30 minutes later instilling in the patient a strong fear of death. He had an attack the same day; *the attack was preceded by a spell of fear with the complex of sensations he had had during the accident.* Subsequently, this complex *always preceded the attacks thus forming the aura.* At the outset, the attacks occurred once or twice a month, subsequently appearing 5 to 7 times a month, taking place without any external reason and always with the same aura—the reaction to the pill.

During the session of psychotherapy, the patient was given to understand the reason for the attacks and a corresponding suggestion was made with the patient in a drowsy state. The interview influenced the patient favourably, his spirits rose, he acquired a faith in recovery and during the following visit stated that "he had felt so good only before his ailment."

The sessions of suggestion with the patient in a drowsy state were conducted at first 2 times a week and then less frequently. From the beginning of the treatments until October 1929 there were no attacks and the patient felt quite good (observation by F. Tseikinskaya).

As I. Pavlov observes, "there is no sense in life when the aim is lost." When the basic appeals and basic reflexes are long kept in check "even the instinct of life and its worth-whileness decline." As a result, the reflex of aim "may weaken and even be completely suppressed by a reverse mechanism" which we see in the notes left by suicides: they "had put an end to life because it had become meaningless."[1]

The lost instinct of self-preservation and the interest in life and its purposefulness can be restored by verbal suggestion. This is illustrated by the following examples from our therapeutic practice.

1. Patient F., 37 years old, applied to us with complaints of depression, irritability, continuous headaches, frequent crying spells, disturbed sleep with nightmares, inexplicable fear, fear of being alone, inner anxiety and a lack of interest in life. Being with people was burdensome to her, she avoided company, and teaching her pupils at school was an "ordeal" to her. In recent months she was melancholic and developed suicidal tendencies; she was totally incapacitated. She had taken sick a year previously after the death of her mother who had died during one of the quarrels of this patient with her husband, the relations with whom were very strained. Considering herself guilty of her mother's death the patient was still unable to reconcile herself to it, while thoughts of her mother for whom she had lived and worked never left her. She had divorced her husband.

Drug treatments brought no relief, reassurances and persuasions upset the patient still more. Mention of her mother provoked in the patient a sharply negative mimico-vegetative reaction. Reassuring and persuading psychotherapy on the conscious level was, naturally, impossible and psychotherapy with the patient in a suggested drowse was therefore instituted.

The word "sleep" produced a drowsy state during which the suggestion was made that the patient accused herself unreasonably and that she should think calmly of what had happened; cheerfulness and firmness, sound sleep and an interest in life were also suggested.

After the first session of suggestion the patient slept well all through the night and in her own words "felt rejuvenated, never recalled her mother, was in the company of people all the time and in a good mood" all through the following day, and "whereas she had been apathetic and indifferent the day before, she was now cheerful, energetic and had regained her self-confidence." The second session was conducted the day after and the same suggestions were repeated. After this the patient left. Her letters informed us that she felt "good in every respect; she was cheerful, vivacious, energetic, efficient and really, as it were, rejuvenated." She was under observation for a period of a year showing a positive catamnesis.

Thus we see that both the phenomenon of acute overstrain of the instinct of life and the inhibition of this instinct can equally be removed, while the

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 200.

instinct of self-preservation can be restored and brought to normal by verbal influence. In this way, the region of the inborn unconditioned instinctive activity may find itself under the direct influence of the impulses coming through the second signal system. This once more confirms the correctness of the ideas of the Pavlovian school about the determining, leading role of the cerebral cortex in all the activities of the organism.

According to Pavlov's teachings, the complete, correct and fruitful manifestation of each instinct "requires its certain strain." If, however, the instinct is overstrained or is "tormented" for a long time (for instance, because of the impossibility of its effectuation), a neurotic state may develop.

The following are observations of removing by verbal influence the consequences of "tormenting" the maternal instinct.

1. Patient M., 27 years old, who passionately wanted to have a child, suddenly lost it a month after its birth (died of pneumonia). The patient developed a deep depressed state with phenomena of delirium, dyssomnia, a feeling of uselessness of life and hypnagogic hallucinatory phenomena (while falling asleep she jumps up because she clearly hears the cry of her child). She complained this state had lasted for 5 months. The patient was alone, her husband being away for a long time on a distant business trip.

Four sessions of suggestion during suggested sleep were conducted, which removed the depression and the concomitant phenomena. She was under observation for 6 months and was relatively composed; there were no relapses, and the patient went to work.

2. Patient K., 41 years old, applied to the dispensary in May 1948, complaining of a depressed state and hallucinations of 8 months' standing. She had lost her 8-year-old son under tragic circumstances (he was drawn into a manhole by a stream of water) in September 1947. She was heavily depressed, had vivid visual hallucinations, increased irritability, could not bear noise, was a burden to those around her and was apathetic. Her daily temperature ran between 37.2 and 37.5° C. (something she had never had before), she suffered from insomnia and was generally emaciated. Diagnosis: reactive depression with hallucinations and emotiogenic hyperthermia.

Psychotherapy was instituted. She showed an improvement after the very first session of suggestion conducted during suggested sleep (of medium depth). Eight sessions produced good results, the patient regained her emotional balance, recalled her son calmly, her temperature came down to normal, she slept better, treated her younger son better, began to take care of herself and notice those around her, went to the cemetery much less frequently (not daily, as before) and displayed greater composure there.

The following is an example of effective verbal influence aimed at removing a *perverted* mother instinct.

3. Patient K., 30 years old, married, complained of a tormenting obsessive desire to choke her own 8-month-old baby; this desire had emerged the day of his birth and kept growing keener, especially during suckling. She was "indifferent" to her child. The intolerably painful state of "useless struggle" with her obsessive desire forced her to apply to a physician.

It proved impossible to disclose the aetiological complex, and psychotherapy was administered purely symptomatically. The patient turned out to be very suggestible. The incongruity of her desire was explained to her in the suggestions made during suggested sleep and a loving motherly attitude to the child was suggested. After the third session the obsessive desire was weakened and consideration and a feeling of pity and tenderness for the child were aroused. After the seventh session the patient recovered completely. She was under observation for one year. This case is particularly interesting in that the true reason for the obsessive desire was ascertained only 23 years after the patient had been cured.

She told us the following: having a son by her first husband she married again in order "to give her son a father." Her second husband turned out to be a good man and justified her hopes; she considered him a friend, appreciated him as a person and as a "father" of her first son. She was not attracted to him sexually and avoided pregnancy for fear that he might change his attitude to her son. Upon becoming pregnant, she developed an aversion for her future child after the birth of which she acquired an irresistible desire to choke him. Later, she grew very fond of her second son.

Thus, a perversion of the maternal instinct can also be removed by corresponding verbal influence.

We shall now consider a picture of a pathological reactive state provoked by a keenly experienced sexual desire. As we know, such a situation not infrequently leads to serious inner conflicts and sometimes ends tragically. However, these distressing personal experiences are usually evaluated by physicians as "natural" under certain conditions of human relations; the arsenal of drugs at the disposal of the physician usually contains nothing save bromides and valerian. Owing to this, the physician, in such cases, frequently finds himself in the role of a mute witness powerless to help if he has not mastered the methods of psychotherapy.

1. Subject K., 33 years old, complained of serious emotional stress and addressed a peculiar request to us, which at first took us aback but then aroused our lively interest. The trouble was that, while she loved her husband and respected him as a person, had a 10-year-old daughter by him, was fond of her family and strove for complete family happiness, she did not achieve it and vaguely sensed that she was "lacking something." A sexual feeling which she did not have at all in her matrimonial life suddenly awakened in her. This very stormy feeling was directed at her husband's cousin who had moved in with them shortly before. After a long and tormenting struggle she succumbed to her desire . . . and understood "what she had lacked for family happiness." Despite her love for her husband, she was irresistibly drawn to the other man to whom she was bound by a feeling of an entirely different nature. An extraordinarily serious inner conflict developed from which she could not free herself by her own efforts. This led her to the idea of suicide and it was only the question of the fate of her daughter that prevented her from taking this step. She came to us with a perfectly unusual request "to give her for her family happiness what she lacked, to enable her to get from her husband what she had from someone else and to forget the other man and everything connected with him." We had some experience with analogous, though less complicated, cases of conflicting relations but we were not sure

that psychotherapeutic interference in the sphere of such intimate relations would directly influence the sexual instinct and produce any positive results. Nevertheless, we decided to institute hypnosuggestive therapy. Below, we are citing excerpts from a diary systematically kept by the patient at our request all through this period, containing the part of the observation we were interested in.

"October 16. Many grave conditions have reduced my nervous system to a state hard to cure. It's been nearly two years that I have suffered from a physical and psychic duality and it is not only my soul, but also my body that has suffered because I have lain for days on end with splitting headaches, all broken up, weak and unable to sleep. I had to leave my favourite and inspiring work. The treatments administered by various physicians bring me no relief and only an idea of suicide reassures me. But when my thoughts dwell on the child and suicide becomes impossible, inexplicable despair seizes me . . . what shall I do? Where is my salvation? I want peace, but cannot find it anywhere. . . .

"December 17. I have found my peace of mind. After the first session of hypnosis I felt much better . . . my thoughts are clearing up . . . I am much calmer.

"December 18. The second session gave me sleep at night and assuaged my mood . . . he does not come to my mind. . . .

"December 19. After the third session I visited some friends whom until then I could not bear to see like any of the others . . . I could not bear being with people before . . . I was pleased to see them now . . . my husband was also there and I wanted to be by his side all the time. . . .

"January 2. The sessions of hypnosis are giving me back my sleep and they have replaced my nightmares by pleasant dreams . . . thoughts about him hardly excite me. I insist that he leave me . . . that he get married. I am calm when he leaves home in order to arouse my jealousy. Tonight when he rang the bell I did not even start; I am cold to him . . . I react calmly to his manifestations of Othellian jealousy, to his mad desire to win me back and to his virtuoso-like threats. . . .

"February 10. Physical intimacy with my husband becomes ever more pleasant for me and ever more necessary. . . . I am indifferent to the caresses the other man forces on me and they are even becoming unpleasant. . . .

"February 15. I am surprised at my firmness and composure under our complicated conditions: we live in the same apartment and I feel his physical superiority, his temperament, his importunity, his suffering, and his threats. . . .

"February 27. I do not recognize myself . . . yesterday I awaited my husband as if I were waiting for him for the first time after a long and tormenting separation . . . as if I had never experienced prose and lack of gratification with him. My husband and I are happy. . . . I've only taken 8 sessions, but I have gained so much from them!

"March 5. The past, the good and the bad, is echoing somewhere in the distance . . . I am living a new life . . . I can read, write, think, care for the family and not contemplate death.

"March 17. Eleventh session . . . yes, I've been cured . . . what appeared beautiful in him now irritates me . . . the past seems unreal. I can hardly

believe I experienced it all myself; it seems someone has told me about a tragicomical, madly incongruous love.

"March 26. I am angry with the one who was the cause of our common family misfortunes. Now I live only with my husband and my daughter. It is only of them that I want to think, it is only they I want to look after, and it is only with them that I want to rejoice and grieve. I am ready to get down on my knees before my husband for my past . . . and 'he' told me to choose between returning him my love and lying in a puddle of my own blood . . . even this no longer frightens or moves me.

"March 31. Only now, after the 12th session of hypnosis, have I understood and begun to feel how unintelligent he was, how we disagreed ideologically and how unnecessary and pernicious our intimacy had been. I have no desire either to write or speak about him any more.

"May 15. I have had no sessions for a period of a month and a half. I have had enough time to analyse my feelings for my husband and for him. For my husband I have a deep and integral feeling which I did not have before the treatments under hypnosis . . . and for him? He no longer exists for me and I am even cruel to him."

We found out later that K. even promoted the marriage of the object of her former passionate desire.

We intentionally cited excerpts from the patient's own diary in order better to trace the development of the metamorphosis which took place in the entire character of the higher nervous activity of the woman as we reorganized the strongest positive sexual conditioned reflexes connected with a definite person into inhibitory, negative reflexes and the sexually neutral stimuli connected before then with the person of her husband into positive ones.

All this determined a new attitude of the patient to these two competing complexes of stimuli. What is the physiological mechanism underlying this neurotic state? As we see it, this particular situation required a long-continued and sharp overstrain of the mobility of the basic cortical processes in a person apparently belonging to the strong unbalanced type of nervous system and artistic temperament. This was a case of a "difficult meeting" and it was possible to get out of it only by reorganizing the relations and by transferring the sexual instinct. The problem was solved by corresponding verbal influence.

We encounter analogous experiences in the following observation when verbal therapy removed a similar abnormality in the development of sexual desire in a man.

2. Patient O., 32 years old, came to the dispensary complaining of a distressing neuropsychic state connected with a strong sexual desire experienced by him for his brother's wife who would not satisfy his lust. In his numerous fits of anger he wanted to kill her. At the same time he was completely indifferent to his own wife. Life in the family had become intolerable.

After six sessions of verbal suggestion conducted during deep suggested sleep, the desire for his brother's wife and the feeling of anger for her disappeared entirely. In addition to this, the long-absent normal desire for his wife resurged. Positive catamnesis without any relapses was traced by us for a period of two years (observation by Z. Kopil-Levina).

It will be observed that literature hardly contains any indications of observations of this sort. Only Albert Moll (1909) in his well-known monograph mentions in passing the "probable possibility" of a suggestive influence on the feeling of amorousness. The foregoing examples indicate that by directed verbal suggestion it is possible to influence the very deep and extraordinarily strenuous processes occurring in the cortico-subcortical dynamics, particularly in the sphere of the complicated emotional-sexual experience of man.

EMOTIONS

The emotional reactions in animals and in man were described in detail by Ch. Darwin (1908). The physiological investigations of the nature of emotions gave rise to the well-known theories of James-Lange and Cannon-Sherrington. The works of Mosso (1887), Lumière (1928), and Jaltrain (1933) should also be mentioned. However, they did not elucidate the problem of emotions sufficiently fully or deeply.

V. Bekhterev made a considerable contribution to the solution of this problem (1929). Regarding the emotions as complex "mimico-somatic" reflexes elaborated on the basis of inborn instinctive reactions, Bekhterev believed that the cortical dynamics were directly involved in their formation. He showed that these reactions could be reproduced by means of conditioned reflexes. As the emotions arise, the stimulatory process spreading from the cerebral cortex to the subcortex travels to the hypothalamic region (the region of the third cerebral ventricle), which contains the higher subcortical centres of the vegetative nervous system, and then spreads to the internal organs, the endocrine glands and the skeletal muscles. His inference that the development of the emotional ("mimico-somatic") reactions primarily proceeds precisely along this path was substantiated by the investigations of his associates, M. Zhukovsky (1898), L. Pussep (1902) and M. Nikitin (1905), Chaly (1914) and Shneyerson (1917).[1] By using the method of conditioned reflexes and extirpation they demonstrated the connections between the various sections of the cerebral cortex of animals and their internal organs. Later, V. Osipov (1917) also arrived at the conclusion that many emotional and affective reactions developed according to conditioned reflexes, i.e., through the cerebral cortex.

Pavlov's school offered a deeper physiological substantiation of the conditioned reflex mechanism of the emotions. The conditioned reflex method made it possible to discover the interoceptive bonds between all the internal organs and the cerebral cortex and establish that they all sent signals to the cerebral cortex. A corresponding strong stimulation provokes an excitation in the cerebral cortex and the excitation spreads through the subcortical centres of the vegetative nervous system to the internal organs and the endocrine glands. The latter immediately send impulses, indicating their active state, to the cerebral cortex. This type of signalling is the physiological substratum of the emotions.

It should be emphasized that any emotional reaction may manifest itself both according to the mechanism of the unconditioned and conditioned

[1] Quoted from V. Bekhterev (1929).

reflexes and not only of the exteroceptive but, as K. Bykov (1947) says, "also infallibly the interoceptive." Thus, the emotions are a "complex reaction of the organism based on complex unconditioned and conditioned bonds of extero- and interoceptive origin." The different emotional states (rage, pain, fear, sorrow, aversion, etc.) are so complicated that for their manifestation they not only require the participation of one particular region of the nervous centres, but also take in the entire nervous system. Based on the joint activity of the cerebral cortex and the subcortex, the emotional reactions may therefore manifest themselves in all divisions of the united animal-endocrine-vegetative system of the human organism.

It is precisely because the emotions are a reaction of an integral organism that they express themselves in the form of a definite subjectively experienced state and in a form of *secretory, vasomotor reactions and muscular movements.* The mimic and pantomimic reactions conditioned by the activity of the skeletal muscles (the so-called expressive movements) represent peculiar external manifestations of the "movement of feelings" or "the language of feelings" so characteristic of the human emotions.

We can judge about the subjective component of the emotions by the nature of the aforesaid external manifestations, but mainly by a verbal account of the experience. The subjective is expressed, as is well known, in the form of various "feelings": pleasure and displeasure, ease and difficulty, joy and sorrow, triumph and despair, love and hatred, etc., whose appearance is connected, according to Pavlov's teachings, with a rise of the emotions and their inhibition, with all variations of either the easy or the difficult course of the nervous processes taking place in the cerebral hemispheres. I. Pavlov further notes that in the picture of the emotional reaction the physiological processes and their psychic manifestations usually represent a single complex: "Who would separate," he asks, "in the unconditioned, very complex reflexes (instincts) the physiological, the somatic, from the psychical, i.e., from the experiences of the mighty emotions of hunger, sexual desire, rage, etc."[1]

An important part in the appearance of certain emotional reactions is played by the deepest inductional relations which may arise between the cortex and the subcortex, for example, in case of a keen excitation of the closest subcortex when the tone of the cortex is reduced, etc. This gives rise to a transient but deep derangement of the higher nervous activity manifesting itself, for example, in the loss of self-control, loss of orientation, and even in a temporary disturbance of the activity of consciousness, i.e., a phenomenon of deep dissociation in the relations of the cortex and subcortex with a prevalence of the activity of the subcortex uncontrolled by the cerebral cortex ("violence of the subcortex"). That is why, according to Pavlov, it is precisely under conditions of high emotionality that "we speak and do what we would never allow ourselves to do in a calm state."[2]

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 457.

[2] *Ibid.*

It will be remembered that under extraordinary circumstances such emotional outbursts may occur also in people with well-balanced cortical dynamics.

Suggestion is the most important stimulus provoking emotional reactions in man. It is capable of producing a much stronger effect and lead to much greater changes than any physical factor. Suggestion inevitably revives the traces of former cortical activity accompanied by some emotional reaction or other.

In their physiological action the emotions are customarily divided into two large groups: sthenic and asthenic. The first (for example, joy, inspiration, etc.) boost the "charge from the subcortex" (I. Pavlov). Laboratory investigations show that they improve the processes of assimilation and raise the tone of the cerebral cortex. Such emotions are pleasant. The asthenic emotions, contrariwise, weaken the process of assimilation, reduce the tone of the cerebral cortex and the force of the basic cortical processes. These emotions include fright, fear, grief, melancholy, etc. Thus, whereas the content of an emotion is determined by the peculiarities of the environmental factors and by the attitude of a concrete person to them, its physiological action is determined by the nature of the interaction of the cortex and subcortex.

Sthenic emotions affect man positively since they stimulate the cortical activity and create a possibility for overcoming the difficulties confronting him. Emotional excitement enables man to perform not only very difficult acts of self-defence or offence, but also helps him in his production and cognitive activity. All of the higher emotional states, all the manifestations of the lofty human desires and aspirations are always connected with a special tension of all the processes of the higher nervous activity.

The *asthenic* emotions produce a different effect. They depress the higher nervous activity. Such emotions arise, for example, as a result of a sharp clash between the interests of the personality and the conditions of the social relations or the factors of the external or internal environment from which the interests of the personality suffer. An external reaction to a keen pain may serve as an expression of an asthenic emotion; the reaction to pain is a primitive asthenic, negative emotion. A sudden collapse of the dynamic pattern caused, for example, by the loss of a close relative or a sudden change in the usual mode of life, etc., may frequently give rise to a deep asthenic emotion. This is responsible for the depressing feelings which are physiologically based precisely on the derangement of the old dynamic pattern and the difficulty of establishing a new one. As I. Pavlov put it, "the processes of establishing a pattern, the consummation of this establishment, the maintenance of the pattern and its derangement constitute the subjectively various positive and negative feelings. . . ."[1]

In addition, it is also customary to distinguish between higher and lower emotions. The lower emotions include those connected with the various needs of the organism (the feeling of hunger, thirst, the sexual drive, etc.). If these needs are not satisfied such emotions change to asthenic, while their gratification engenders a corresponding sthenic emotion which signals

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 391.

physical well-being. The higher emotions include the experiences connected with the satisfaction or dissatisfaction of man's needs conditioned by his social consciousness, for instance, the ethical and aesthetic emotions and the emotions of gratification connected with the success or failure in his cognitive and labour activity, etc. They can also be correspondingly sthenic or asthenic.

It will be noted in conclusion that the problem of emotions has not yet been properly elucidated from the point of view of the Leninist theory of reflection. The first attempt at elaborating the theory of emotions in the light of the latter was made by V. Myasishchev (1948). He considers the emotions as a type of man's attitude to the strongest social and physical influences elaborated in the phylo- and ontogenesis.

Finally, it should be emphasized that all the manifestations of emotions in man, like their very character, are most closely connected with the activity of the second signal system without which not a single emotion can manifest itself. This is due to the fact that all types of emotional (as well as instinctive) activity in the ontogenesis of man's higher nervous activity acquire a very complex system of conditioned reflex bonds both with the first and, mainly, with the second signal systems.

The first experimental studies of the objective signs of emotional states provoked by means of suggestion during suggested sleep were made by A. Lazursky and V. Sreznevsky (1912) in V. Bekhterev's clinic. The emotions of joy, grief, fear and rage were suggested to the subject, while his respiration and pulse served as indices. These indices whose nature depended on the type of suggested emotion showed variations. At the same time these variations were identical with what was observed during the actual experience of these emotional states. Thus it was established for the first time that it was really possible to provoke corresponding emotional experiences by verbal suggestion during suggested sleep.

A. Shneyerson (1917) experimentally established in V. Bekhterev's laboratory that after combining with an emotiogenic stimulus several times an indifferent stimulus also became emotiogenic. This testified that it was possible to produce emotions by conditioned reflexes. In addition, the conditioned reflexes elaborated during the experience of a strong asthenic emotion (the emotion of fear) became, according to V. Bekhterev, V. Myasishchev (1926) and N. Krasnogorsky (1939), extraordinarily stable and retained their force for a very long time.

In our investigations (1930) we proceeded from the fact that the changes in the pulse and respiration taking place in response to a pain stimulation of the skin may be considered objective manifestations of an emotional reaction to an unconditioned stimulus. Our investigations showed that a verbal suggestion of an imaginary pin-prick alone provoked this reaction.

Changes in the pulse rate are also observed when more complex emotional states, for example fear, are suggested (Fig. 72).

The feeling of fear also manifests itself as a tremor of the skeletal muscles which can likewise serve as an objective proof of the experience of the given emotion (Fig. 73).

Y. Povorinsky (1940) studied the influence of suggested emotions on gaseous exchange. For this purpose the initial level of gaseous exchange was determined in the subject in the state of rest and then various pleasant

(favourite musical compositions) and unpleasant emotions (toothache, examination, thought of a forthcoming surgical operation, etc.) were suggested. It was thus established that the experience of suggested emotions exerted enormous influence on the gaseous exchange, the unpleasant emotions causing a much greater rise in the gaseous exchange than the pleasant emotions. As the author observed, especially significant alterations

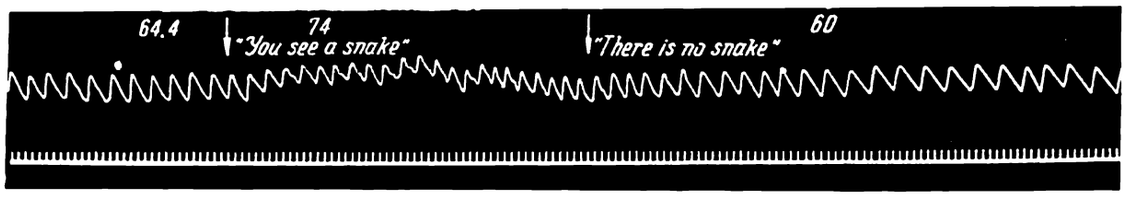

Fig. 72. Change in pulse rate after suggestion of fear during suggested sleep. Figures indicate pulse rate.

in the gaseous exchange were noted when pain sensations, thoughts of a forthcoming surgical operation and other strong emotions were suggested. Under these conditions the gaseous exchange increased in some subjects by 300 per cent compared with its initial value. Y. Povorinsky (1949) also studied the vascular reactions occurring in emotional experiences provoked

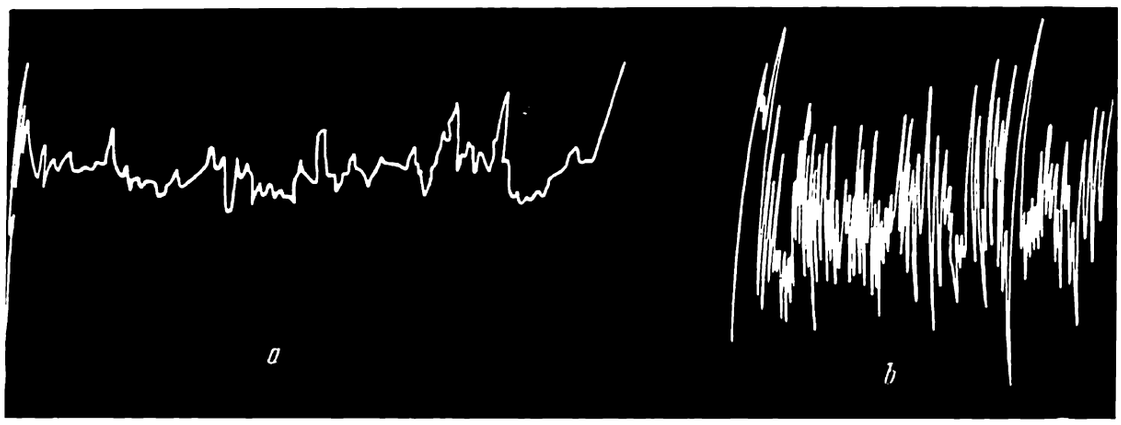

Fig. 73. Tremor of fingers in the waking state under conditions of rest *(a) and after* verbal suggestion: "You are in a forest and are afraid; wake up" (*b*), made during suggested sleep.

in the subject by means of verbal suggestion during suggested sleep. He observes that in calm suggested sleep, as in natural sleep, the plethysmogram, the respiratory rhythm and the pulse rate did not change at all, while the verbal stimulations producing an emotional reaction affected the vascular reactions even more markedly than the usual unconditioned stimuli.

The investigations of A. Marenina and I. Volpert (1950) showed that the biocurrents of the cerebral cortex recorded during suggested dreams which caused experiences of positive or negative emotions could serve as objective signs of suggested emotional states (Fig. 74). The studies of these authors vividly illustrate the difference in the nature of the biocurrents of the brain in the waking state, under hypnosis and during an unpleasant sug-

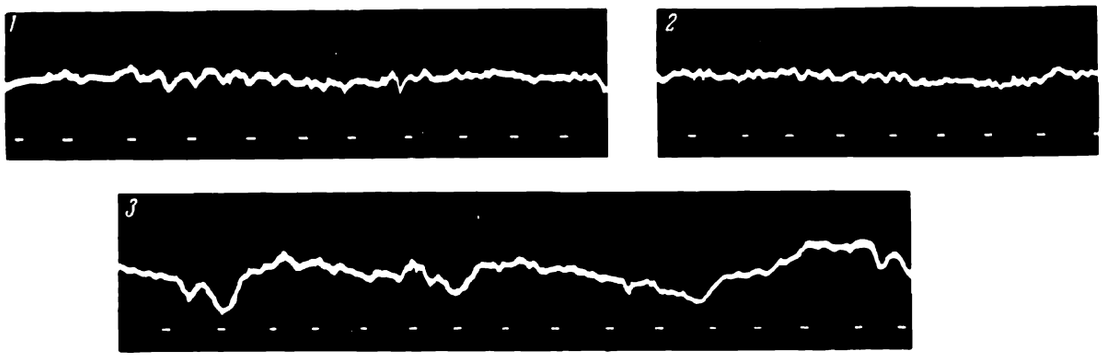

Fig. 74. Electric activity of cerebral cortex in the waking state (*1*), during quiet suggested sleep (*2*), and in fear experienced during suggested sleep (*3*) (after A. Marenina and I. Volpert).

gested dream accompanied by a sense of fear. According to I. Volpert (1952), the suggested dreams find noticeable reflection in the electroencephalogram if they are replete with suggested unpleasant emotions, while the suggested pleasant emotions do not alter the biocurrents at all or alter them but slightly. This means that in negative emotions the dynamics of the basic cortical processes considerably increase and proceed under conditions of great tension and catabolism.

The emotional states provoked by suggestion may also be accompanied by more or less thorough-going biochemical changes. Thus the investigations conducted by V. Gakkebush (1926) showed that when a long-experienced emotion of fear was suggested the amount of sugar in the urine and in the blood increased.

According to our own data, suggestion of positive sthenic or negative asthenic emotions made during suggested sleep considerably affects the state of physical efficiency. Fig. 75 shows the ergograms obtained by us on Mosso's ergograph with various suggested emotions: a suggested feeling of joy raised the efficiency, whereas a suggestion of a "depressed mood" reduced it. This also affects the state of the vegetative indices. Thus according to N. Timofeyev (1938), a verbal suggestion of pleasant experiences and composure during suggested sleep reduced the arterial pressure (in his investigations by 20 mm.), while the pulse slowed down (by 8 beats). On the other hand, a suggestion of a troubled mind, melancholy, a sense of loneliness, sensation of cold, and a "desire to escape this unpleasant situation" raised the arterial pressure (by 10 mm.) and increased the pulse rate (from 65 to 120 beats per minute).

V. Yasinsky and A. Kartamyshev (1930) investigated the influence of suggested negative emotions on leucocytosis during suggested sleep; sixteen studies were made on 12 people with an increase in the leucocyte count (from 2,200 to 4,000) observed in all of them. After a suggestion of a peace of mind the leucocyte count dropped to the initial value again.

In conclusion, we shall cite the data of V. Zdravomyslov and S. Andreyev (1938) who in a number of cases objectively found changes in the content of acetylcholine in the venous blood depending on the nature of the sug-

gested emotional experiences. Thus, when the feeling of joy was suggested the amount of acetylcholine in the blood decreased while with suggestion of fear it increased (Fig. 76).

According to the investigations conducted by Heilieg and Hoff (1928), the suggestion of positive emotions accelerates diuresis, decreases the excretion of phosphates and sodium chloride and if the subjects experience these emotions for a long time they usually put on weight. On the other hand, when a negative emotion (fear or grief) is suggested the amount of excreted urine increases, the excretion of sodium chloride and phosphates also considerably increases and the subjects lose weight as a result. According to Grafe and Mayer (1925), when depressed states are suggested the basal metabolism rises 7.5 per cent, while the suggestion of positive, joyous emotions raises the basal metabolism only 4 per cent. The rise in metabolism is particularly sharply pronounced when the emotion of fear is suggested. Deutsch (1925) observed a 26 per cent rise in basal metabolism under these conditions. In Heyer's experiments (1923) the amount of phos-

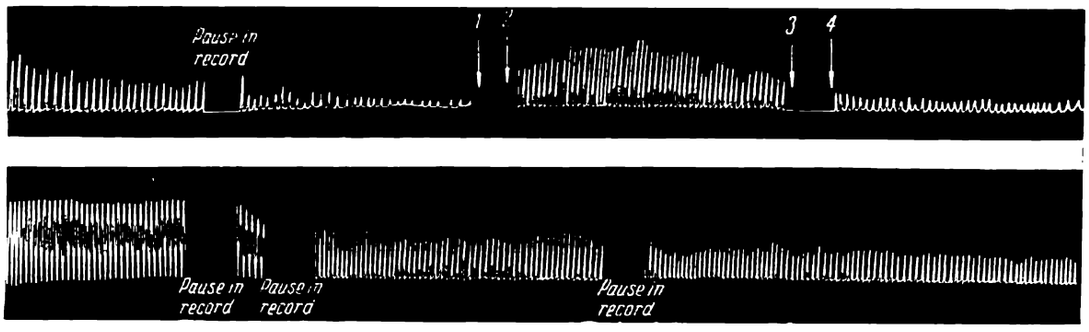

Fig. 75. Influence of suggested emotion on efficiency (ergography).

Upper curve—continuous work to the point of fatigue. *1*—"Sleep!"; *2*—suggestion: "You are in a happy mood, wake up and continue working" (though only 15 seconds had elapsed since the termination of work an increase in efficiency was observed); *3*—"Sleep!"; *4*—low spirits were suggested after which efficiency dropped sharply.
Lower curve—ergogram recorded after new suggestion of high spirits, which showed a new rise in efficiency.

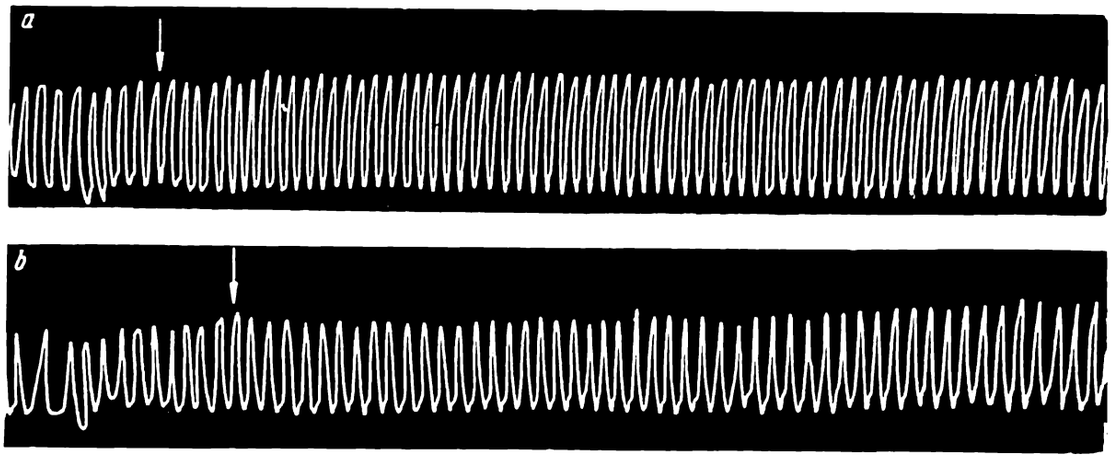

Fig. 76. Different influences exerted on the heart of the frog by human blood taken after suggestion of fear (*a*) and joy (*b*) (after V. Zdravomyslov and S. Andreyev).

phates in the urine increased 115 per cent under the influence of a four-hour experience of fear under hypnosis.

According to Glaser (1925), considerable emotional excitement provoked by a suggestion during suggested sleep results in an increase of the content of calcium ions in the blood serum, whereas a suggestion of peace of mind reduces their amount.

All these investigations show that the suggested emotions are accompanied by profound biochemical changes. This is confirmed by the biochemical studies of D. Alpern (1935), which indicate close bonds between the vegetative nervous system and the tissue processes. D. Alpern's most recent investigations (1954) devoted to the trophic function of the nervous system render even more intelligible the influence of the emotions on the intimate metabolic tissue processes.

The data obtained by us jointly with the roentgenologist T. Osetinsky (1929), N. Beschinskaya (1937) and V. Kopitsa (1950) in a roentgenographic study of the influences exerted on the tone of the muscles of the stomach by positive and negative emotional states produced by means of verbal suggestion represent a certain interest. Persons of both sexes aged 18 to 40, doing intellectual work and clinically perfectly healthy were the objects of observation. A total of 12 persons were investigated both in the waking state and during suggested sleep.

It will be recalled that a sharp decrease in the tone of the gastric muscles and of the motoricity of the diaphragm and the intestines takes place during suggested sleep: the stomach drops below the diaphragm, the amplitude of the movements of the diaphragm sharply decreases and the peristalsis drops to a minimum (see Fig. 22).

The data on the investigations of the influences of emotional states testify that during a suggested experience of the feeling of joy most subjects show a rise in the tone of the gastric muscles and in intestinal activity: diminishing in size the stomach rises (Fig. 77, *c*), the peristalsis becomes more vigorous and evacuation is accelerated. On the other hand, when a depressed state (sorrow, grief) is suggested the stomach immediately drops, falling into a hypnotic state. Thus, when a feeling of grief or melancholy is suggested the stomach drops lower than it does in quiet sleep, the peristalsis weakens and evacuation slows down. An uncommonly sharp reaction on the part of the motoricity of the stomach is observed when a stomach-ache, a toothache, etc., are suggested (Fig. 77, *e*).

The motoricity of the stomach changes particularly when the feeling of terror is suggested; in one of the subjects the stomach assumed the form of a snail and rose sharply with violent peristaltic waves sometimes observed, the evacuation sharply increasing in some cases and completely ceasing in others.

Roentgenoscopic observations conducted by us on two students of an institute of music and drama can serve as an illustration of the significance of the idea of emotional experiences. By observing the motoricity of the stomach in this case we were able to judge of the extent to which an actor experienced the emotions he wanted to show on the stage. When the students were in the waking state they were asked to show joy and then grief.

In one of these students we first observed gastric motoricity corresponding to a "reaction of joy" and then a "reaction of terror" (similar to the ones described above). By subsequent questioning we established that he had really experienced these emotional states: "... I had a feeling of joy at seeing my sweetheart and one of terror at the sight of her death," "At first I thrilled with joy and then trembled with the terror of the imaginary picture." These subjective experiences were vividly reflected in the whole picture of the gastric motoricity and at the same time in the total mimicry of the student.

In the other student who imagined the same picture we hardly observed any reactions on the part of the stomach. As we subsequently found out he affected his experiences of joy and terror purely externally, mimically and quite vividly, but never actually experienced them. It was later ascertained that the first student was the most impressionable and most capable of the two.

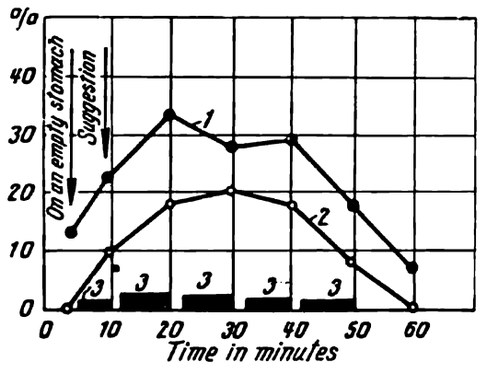

Fig. 78. Influence exerted by suggestion of eating palatable food on the digestive capacity of gastric juice.

1—general acidity; 2—free hydrochloric acid; 3—digestive capacity of gastric juice according to Mett (in mm.).

The data of these two studies could serve as an objective illustration of an experienced emotional state produced in the given case according to the physiological mechanism of *autosuggestion.* At the same time they testify that the reactions of the second signal system (and through it also of the subcortex) arising in response to verbal suggestion of an experienced emotion are identical with those produced by a person himself. Of late this has found confirmation in the experiments conducted in the laboratory headed by A. Ivanov-Smolensky in which the subject's idea about the word-stimulus, the thought of it alone, led to the same conditioned reflex reaction as when this word was uttered by the investigator.

In addition to investigating the motoricity of the stomach we studied jointly with our associates M. Paikin, M. Bokalchuk (1928) and M. Linetsky (1951) the secretory activity of the gastric glands against the background of various suggested emotions. The data obtained showed that after a suggestion of a sthenic emotion (favourite palatable food, lottery winnings, etc.) the amount of secreted juice sharply *increased* (300 to 500 per cent), its digestive power increasing (two- to threefold) and these changes reaching the maximal level from 10 to 20 minutes after the suggestion and then decreasing (Fig. 78).

On the other hand, suggestion of asthenic emotions (sorrow, melancholy) provoked a reduction in the amount of gastric juice (200 to 700 per cent), of the total acidity and of the free hydrochloric acid which in some cases was totally absent.

Concerning the studies conducted by foreign authors it will be noted that their data are analogous to ours. Thus according to Heyer (1925) the suggestion of a negative emotional experience inhibited the secretion of gastric

juice. This author also showed that under the influence of the changes in the emotional tone the roentgenoscopic picture of the motoricity of the stomach also changed: when a positive emotion was suggested the stomach assumed its normal tone if it had been lowered.

The data obtained by Heilieg and Hoff (1928) are not devoid of interest: when it was suggested to people with normal and low gastric acidity that they were eating their favourite dishes, a rise in the acidity was observed (even when the suggested food was excessively rich and should have lowered the acidity). And, contrariwise, a suggestion to a person with a

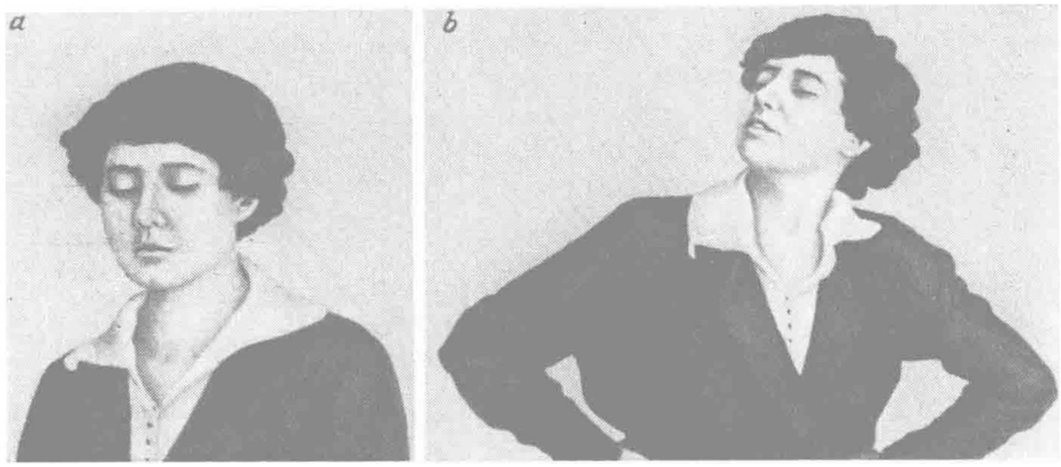

Fig. 79. Mimic reactions during suggested sleep after passive change of subject's pose.

a—resting pose; *b*—defiant pose.

high gastric acidity that he was eating a dish he did not like, but which usually provoked higher acidity, produced a sharp drop in the acidity, sometimes to the point of its total disappearance.

Hoff and Wermer (1925) showed that verbal suggestion of a meal consumed "with pleasure" and "without pleasure," "palatable" and "tasteless" also exerted an influence on the quality of the gastric juice: in the former case the value of the total acidity and the amount of free hydrochloric acid increased, in the latter case the total acidity dropped to a minimum, while the amount of free hydrochloric acid was reduced to zero. However, these authors did not investigate the influence of emotions on the digestive capacity of the stomach as it was done by M. Bokalchuk and M. Paikin.

In conclusion we deem it advisable to describe the picture of the development of various emotional states produced by passive changes in posture. The arms of the subject are put in a position corresponding to some particular emotional state expressed by this posture (Figs. 79 and 80). The photographs show the external picture of various experiences of a person under the influence of a change in the position of her arms effected by the hypnotist during suggested sleep. A corresponding mimic reaction connected with the particular position of the extremities immediately appears on the subject's face. The roentgenologic picture of motoricity of the stomach correspondingly changes at the same time.

In this case kinaesthetic impulses formerly combined with various emotional states and connected with them by mimico-somatic reactions

were now running to the cerebral cortex and served as the conditioned stimulus. This circumstance emphasizes that the development of emotions is based on the conditioned reflex mechanism.

In daily practice, especially surgical and odontological, there are cases when a once produced asthenic emotion becomes pathologically fixed for a long time. According to Pavlov's teaching, this phenomenon is connected with the appearance of inert inhibitory points in the cerebral cortex; this state of the cortical cells can be removed if a corresponding and sufficiently strong excitation is set up in the cortex. The following are several examples

Fig. 80. Mimic reactions during suggested sleep after passive change of subject's pose.
a—imperative gesture; *b*—grieving pose.

in which the pathologically inert emotional state was removed by verbal suggestion; these cases were taken from our dispensary and clinical practice.

1. Patient K., 40 years old, was to be operated on for piles. However, extreme anxiety before her operation prevented her not only from lying down on the operating table but even from entering the operating room. Three sessions of suggestion with the patient in a suggested drowse were conducted. Thus, the inadequate emotion of fear was removed and this enabled the patient to enter the operating room calmly, lie down on the table and keep quiet throughout the operation performed under local anaesthesia (observation by A. Sosedkina).

2. An 11-year-old girl, according to her mother, strongly resisted the extraction of a tooth at the age of six. Since then she has not allowed any physician to come near her even to take her pulse. When the necessity for filling two of her front teeth arose, the very first visit of an odontologist aroused a violent excitement and fear in her. The girl turned pale, broke out crying and showed motor excitement. Persuasions proved of no avail and the parents decided to apply to a psychotherapist.

A little stroking of the forehead produced a drowsy state in which it was suggested that the girl "no longer fear any examination of her pulse or her teeth and their filling." After the session the girl allowed her pulse to be examined. The following day the girl came to an odontologist's office and experiencing no fear watched her mother's teeth filled and even persuaded the latter not to worry. Subsequently she allowed her teeth to be examined, expressing a desire that they be filled sooner; a day later she went calmly through this operation.

3. Patient G., 50 years old, complained of a fear which pathologically manifested itself before thunderstorms, when she "half-fainted." Two sessions of suggestion were conducted during suggested sleep, after which her fear never recurred for a period of 18 years.

There are more complicated cases in which the source of serious troubles and internal conflict leading to the development of a depressive neurotic state may be a strong sthenic emotion, for example, a feeling of being very much in love, if the latter must for some reason or other be suppressed. As we see from the examples cited below, psychotherapy may produce a positive effect also in these cases.

4. Patient B., 25 years old, complained of an extremely depressed state, loss of interest in life, melancholy and total incapacity, which had lasted for three months. She developed this condition when she found out she could not marry the person she loved. It turned out that the young man whom she had "loved to distraction" for two years and with whom she long since had a mutual agreement of marriage suffered from a periodical psychosis. This circumstance made it impossible for him to get married. On the basis of the clash and struggle of the two opposite tendencies, i.e., strong emotional attraction for the object of her love and her reasoning supported by her relatives and physicians, she developed an extremely depressive-anxious state of which she could not rid herself. Physicians said it "would all pass," but there was no improvement and, on the contrary, her depression increased.

Five sessions of suggestion during suggested sleep were conducted. The following was suggested: "You understand our explanations very well and are now persuaded that it would be inexpedient and even harmful for you to continue your relations with a sick person. His disease may be inherited by your future children. The negative traits of his character were underestimated by you because you were blinded by a feeling of love for him. . . . Your love for him is weakening with each passing day, meetings with him no longer excite you and you think of him less and less. . . . You have already forgotten your experience just as you have already become disappointed in him. . . . You are happy to be free of the unnecessary attraction for him, your well-being has been restored, you are composed as ever before, purposeful, and have regained your interest in life," etc.

This completely removed the pathological depression and restored the emotional balance and efficiency.

The foregoing ailment was based on a sudden collapse of the dynamic pattern which had formed and had become fixed over a long period of time; it proved beyond the strength of the given nervous system and resulted in a profound and long-continued derangement of the higher nervous activity.

Thus we see that a strong sthenic emotion, such as ungratified love, if the situation imperatively demands its removal may lead to a neurotic ailment which can be eliminated by pathogenetically appropriate psychotherapy.

With this we end the description of the theoretically and practically very important investigations concerning verbal influence on emotions. Of course, these data are not enough to make general conclusions in so extensive a field as the teaching on emotions. Nevertheless, in the light of Pavlov's teachings on higher nervous activity they may be of some significance by elucidating the mechanisms according to which the emotional reactions are formed, manifest themselves and are removed. This is all the more important since the sphere of emotions has as yet been insufficiently studied.

THE WORD
AS A THERAPEUTIC FACTOR

CHAPTER XV

COMPARATIVE EVALUATION OF PSYCHOTHERAPEUTIC METHODS

> ...The enormous accumulation of clinical observations in the last 50 years is based on the fact that the physiologist has given the physician a scheme of life with which the latter can conveniently observe the phenomena he encounters, recognize and group them.
>
> *I. Pavlov*

The struggle for psychotherapy in our country began a long time ago. As early as the 18th century A. Radishchev said that "spiritual medicine" had the right to the same consideration as "all the druggist's remedies." In 1820 M. Mudrov emphasized that "there are also spiritual remedies which cure the body" and pointed at the necessity of exerting corresponding mental influence because, as he put it, "this art imparted to the patients the firmness of spirit which conquered bodily pain, melancholy and nervousness and which sometimes subordinated to the will of the patient the diseases themselves, for example, nervous diseases."

I. Dyadkovsky was of the same opinion when he wrote in 1836 that "the most important remedy the sufferers need is the force of moral suasion ... and shame to the physician who *does not possess this remedy.*" (Emphasis by the author.)

Having collected extensive factual material V. Manassein (1876) called the attention of the physicians to the "psychic method of treatment which had theretofore not been given universal recognition in practical medicine."

It will be noted that the Russian internists S. Botkin, G. Zakharyin and A. Yarotsky were the first to point out the necessity for paying more attention to the aetiological and therapeutic importance of the psychic factor. In 1908 A. Yarotsky published a book specially devoted to the problem of the influence of psychic activity on physiological processes.

The first major study specially devoted to questions of psychotherapy was carried out by the Moscow psychiatrist A. Tokarsky (1887) and his assistant S. Korsakov. It dealt with the only method of psychotherapy of the time—suggestion under hypnosis. A. Tokarsky was the first to use this method in a psychiatric clinic. S. Korsakov himself also attached great importance to the psychic influence of the physician on the patient, includ-

ing the clinical use of suggestion under hypnosis (1901). Tokarsky's followers (Y. Dovbnya, F. Rybakov, V. Khoroshko, P. Podyapolsky, D. Smirnov, B. Tokarsky, et al.) greatly contributed to the clinical administration of hypnosis and suggestion.

However, a special instruction issued by the Medical Department in the eighties of last century sharply restricted the sphere and conditions for administering suggestion and hypnosis for therapeutic purposes and reduced, particularly in Moscow, the interest in this important method and its experimental and clinical application.

V. Bekhterev, outstanding psychoneurologist of world fame, played an important part in the development of the clinical administration of suggestion and hypnosis. From the eighties till the last days of his life, he untiringly popularized the administration not only of hypnosis and suggestion, but also of other psychotherapeutic methods for therapeutic purposes.

Of the foreign authors who elaborated problems of psychotherapy special mention should be made of Braid, Charcot, Bernheim, Forel, Löwenfeld, Kronfeld, Dubois and Déjèrine. It will be noted that great harm to the teaching on neuroses and the use of psychotherapeutic methods was inflicted by Weismann's idealist teaching of the invariability of hereditary substance and hereditary properties and by the pseudo-scientific conception of Freud and his followers.

Speculative psychology still prevailed in science at the end of the nineteenth and the beginning of the twentieth centuries and the methods of psychotherapy were, therefore, not scientifically substantiated.

Only the investigations of Pavlov's school made a scientific understanding and application of psychotherapeutic methods possible.

Proceeding from Pavlov's teachings we must now understand psychotherapy as pathogenetic therapy based on a physiological analysis of the functional disorders of the higher nervous activity of man. The studies of A. Ivanov-Smolensky, K. Bykov, M. Petrova, S. Davidenkov, N. Krasnogorsky, B. Birman, F. Maiorov, V. Myasishchev, and Y. Povorinsky are of great importance in this respect.

Since 1912 we have gathered extensive material testifying to the efficacy of psychotherapy. We therefore find it possible on the basis of our experience to state our general considerations of the opportunities for successfully administering psychotherapy.

Physiologically grounded psychotherapy aims at removing the functional disorders of the higher nervous activity by using the influence of suggestion on the cerebral cortex and through it on the whole organism.

One of the chief factors of the therapeutic influence on the dynamics of the cerebral cortex is oral speech which is a powerful complex conditioned stimulus of the second signal system and at the same time a potent social factor. By influencing the cortical dynamics explanation, persuasion and suggestion change in the desired direction the consciousness of the patient, his emotional sphere, his endocrine-vegetative activity and the other physiological processes occurring in the organism. Psychotherapy must, first of all, ensure an optimal relationship between the basic nervous processes of the cortex and subcortex and both signal systems in the activity of the integral organism. By creating in the cerebral

cortex new dynamic structures which aid in regulating the general physiological state of the human organism and remove the pathological states, psychotherapy thus contributes to the speediest restoration of its normal functioning.

It should be constantly borne in mind that in administering psychotherapy we must consider the individual peculiarities of man, which spring from the enormous complex of intricate and socially conditioned temporary bonds and cortical dynamic structures of his life's experience. In restoring by methods of psychotherapy the normal state of the higher nervous activity which was disturbed by the ailment the physician must consider the basic peculiarities of the concrete social environment in which the person found himself before the ailment and will find himself after the treatment.

The basic requirement of therapeutic medicine consisting of administering causal therapy naturally also applies to psychotherapy: the psychotherapist *must analyse the causes of the given ailment.* Without a corresponding analysis of the concrete causes not a single method of psychotherapy can be fully effective either in the waking or the hypnoid state. A stable positive effect sometimes achieved without disclosing the nearest cause of the given neurotic ailment (particularly in psychotherapy during suggested sleep) must be regarded as an exception. As a rule, each form of psychotherapy should always be preceded by a concrete analysis of the causes and conditions under which the symptoms and the neurosis as a whole appeared.

As I. Pavlov emphasizes, it is necessary to find "... the conditions and circumstances which acted at once or slowly, and may be justly connected with the origin of the morbid deviation, i.e., the origin of the neurosis." We must *understand* why these conditions and circumstances produced just this result, while in another person the same conditions and circumstances "passed entirely unnoticed," why "in one person they resulted in one morbid complex and in another in an entirely different complex."[1]

The long experience of the therapy of neuroses indicates that in the overwhelming majority of cases various psychic trauma and the physiological mechanisms underlying them can thus be relatively rapidly disclosed and understood. Consideration of the various aetiological factors of the ailment and of the physiological mechanisms conditioning it is of essential importance. This determines the corresponding questions rationally posed during the anamnestic interview of the physician with the patient. An analysis of all the stages of the patient's conscious life in the form of a questionnaire, i.e., as we say, "according to a calendar plan," frequently rather quickly discloses real causes for the onset of the neurosis and the conditions under which it developed.

Until very recently one could still hear that psychotherapy (particularly hypnosuggestive) was experiencing a crisis. This is not true, however. In Pavlov's teachings on higher nervous activity psychotherapy has found its physiological basis and has entered on the path of scientific development. Today we therefore have sufficiently substantiated indications for

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 339.

instituting psychotherapy not only for purposes of treating "purely" psychogenic neuroses but also for administering aid in somatic ailments. The sphere of psychotherapeutic application has extended beyond the boundaries of psychiatry; psychotherapy is administered in all branches of therapeutic medicine without exception. There is not a single clinical branch that does not include psychotherapy as a method of direct or indirect influence on the state of the higher nervous activity of the patient and, hence, on the entire course of his disease.

The greater or lesser complexity of the psychotherapeutic approach to the patient is determined by the complexity of the conditions under which the neurosis developed and of the underlying physiological mechanisms. When the factors traumatizing the mind are at once clear to the physician and the patient, there is no need going deeply into the reasons for the development of the neurosis, and the physician may successfully use reassurance, persuasion and verbal suggestion on the conscious level. This form of treatment may be called *minor psychotherapy*. It also includes purely symptomatic psychotherapy. Every physician can and must master this form of psychotherapeutic interference.

Other cases require a deeper investigation of the concrete predisposing and provoking causes, a study of the factors traumatizing the mind and the nature of their influence (their repetitiveness, duration in the preceding life of the patient), and, finally, an analysis of the physiological mechanisms underlying the given neurosis. Here one must use more complex therapeutic methods: a more or less detailed and extensive anamnestic interview, explanation and persuasion on the conscious level, verbal suggestion to the patient in a drowsy state or during suggested sleep. Depending on the case it is sometimes necessary to resort to more complicated measures (change of environment, living conditions, occupation, etc.). This combination of the interconnected psychotherapeutic measures may be called *major psychotherapy* and should be used by a specially trained psychoneurologist or psychiatrist.

How effective was the psychotherapy practised by us and our collaborators in treating psychogenic neuroses?

The following figures will show how effective it was under ambulatory conditions for a period of years: 58 per cent of the patients were cured completely, 20 per cent showed considerable improvement, 16 per cent showed a slight improvement and 6 per cent showed no effect at all. Consequently, real aid was rendered under our conditions in 78 per cent of the cases. Such considerable efficacy was apparently due to the use of the combined method of pathogenetically grounded psychotherapy.

It is to be supposed that as our knowledge of the physiology of higher nervous activity increases, as we learn better to diagnose the neuroses, develop better methods of psychoprophylaxis and psychotherapy, and accumulate psychotherapeutic experience, psychotherapy will become even more pathogenetically purposeful and methodologically distinct.

At the same time we believe that the somatologists will subsequently have the opportunity of convincing themselves that influences traumatizing the mind play an important part in a number of somatic ailments. By this we mean, for instance, the observations concerning the psychogenic disorders of the activity of the internal organs, the cardiovascular, endocrine-

vegetative systems, etc. The syndromes of the psychogenic disorders of this type show the same picture of functional derangement of the activity of the given organ or system as in their actual organic affection. This is precisely what is known as the "neurosis of the organ" or "vegetoneurosis," which we shall treat in greater detail below.

The fact that there is a functional bond between the cerebral cortex and the internal organs serves as the basis for the institution of psychotherapy as an auxiliary means for removing the somatogenic neurotic symptoms, which are of a secondary origin, a result of an *organic* ailment of some system or organ.

It would seem that the importance of psychotherapy in the treatment of neurosis has long been generally accepted. However, not all its methods were equally recognized for a long time. While using some of the existing methods of psychotherapy, some psychoneurologists disregarded all its other methods. This resulted in a division of the psychotherapists into "hypnologists," "rationalists" and "psychoanalysts" and in a violation of the principle of individualization in treating the patient. At the present time, however, every psychotherapist should be familiar with all forms of psychotherapy both on the conscious level and under hypnosis.

PSYCHOTHERAPY ON THE CONSCIOUS LEVEL

Before describing the various methods of psychotherapy we shall discuss the anamnesis for the purpose of showing the conditions under which the neuroses develop.

For the purpose of ascertaining the diagnosis the patient must first be thoroughly examined somatically. Following this, a detailed anamnesis of the patient is gathered for the purpose of disclosing the conditions under which the given neurotic ailment arose, its clinical and pathophysiological picture and for determining the nature of the patient's psychic trauma. In addition, the force of the factors traumatizing the mind, the duration of their influence, the possibility for a subsequent second signal re-elaboration of the effect of this influence by the patient, etc., are ascertained. Finally, the possibility of removing the factors traumatizing the patient's mind and the attitude of the patient to his morbid state, the readiness of the patient for treatment and his desire to get well or, on the contrary, his "escape into the disease," etc., are determined.

All this is very important material which helps the physician to familiarize himself with the condition of the patient and serves as the initial stimulus to therapy. Already the frank "confession" of the patient not infrequently proves an important psychotherapeutic factor opening the way for subsequent successful treatment.

It will be remembered that every patient is anxious about the state of his health. It is therefore necessary, first of all, to reassure him and to relieve his tense, anxious condition. Only then should an anamnestic interview and subsequent systematic therapy by explanation or persuasion be instituted. We usually elucidate the causes of the neurotic state and its physiological mechanisms if the patient does not know them, is insufficiently aware of them or incorrectly interprets them. Sometimes it is

impossible to ascertain the concrete conditions of the pathogenesis at the very outset, but, as practice has shown, this is no obstacle to the institution of psychotherapy, at least symptomatic, which considerably relieves the patient's condition and facilitates the obtaining of the anamnesis. It can frequently be observed that the nature of the patient's attitude to his morbid sensations, thoughts or experienced psychic trauma begins to be reorganized already in the very process of this interview.

The methods of explanatory and persuasive verbal influence may begin with questions relating to the patient's mode of life, conditions of his social and family relations, the character of his work, etc. The physician must explain to the patient the reasons for the development of his neurotic condition, teach him correctly to evaluate the symptoms and the therapeutic methods aimed at removing this condition; the physician must also correct the mistakes in the reasoning of the patients, combat their prejudices and influence them by logical persuasion.

However, therapy by explanation and persuasion can be put on a sufficiently high plane only if the physician himself fully understands the real reasons, conditions and mechanism of the development of the given neurotic state. The use of this method can therefore be rational only if the physician makes an all-round study of the conditions under which the ailment developed and considers the factors of the social environment.

In making logical inferences, the physician must not confine himself to theoretical reasons because, however skilfully they may be constructed, they are insufficient to make a person change his mind. The reasons offered by a physician must not only be logically grounded, but also bear an emotional colouring. According to Dubois's colourful expression (1911) these reasons "must not be served cold, but must be heated by ethical conceptions and examples."

In explanatory, persuasive psychotherapy the physician must strive to activate the patient's cerebral cortex and increase its tone. The physician must aid in removing the pathological bonds in the cortical dynamic structures and in creating new ones, which is accomplished by the patient by means of a critical re-elaboration (under the supervision of the physician in a frank interview with him) of the entire pathogenetic situation which served as the cause of the ailment.

It should be emphasized that in this method of treatment the state of the emotional sphere of the patient, his cortical activity, the ability objectively to weigh and critically to evaluate his condition and especially *his personal experiences* which determined the onset of the neurotic ailment are of very great importance.

The method of explanation and persuasion was at one time regarded by many as presumably the most productive of all methods. This was due to the fact that the methods of suggestion and hypnosis which were not scientifically substantiated at the time found application only in symptomatic therapy, whereas the method of explanation and persuasion had features which clearly brought it closer to the problems of pathogenetic therapy. The bias of physicians as regards hypnosis was also based on the erroneous conception of Charcot's school of hypnosis as a pathological state, etc.

The following observation will serve as an illustration of the efficacy of explanatory psychotherapy.

1. Patient D., 22 years old, student, complained of severe headaches, depressed mood, unreasonable tears, drowsiness in the day-time and absence of sleep at night, fear connected with the forthcoming parturition, and thoughts of death. She had been left by her husband in the fifth month of pregnancy owing to which she was ashamed of her pregnancy, did not want to have the child and "was terrified at the thought of having to educate and support it." She did not retain any of the material studied and neglected her examinations.

A session of explanatory psychotherapy of the following content was conducted: "Your morbid condition has been produced by the break with your husband, you have not yet lived down this break and your future, therefore, appears so dark to you. As a matter of fact, the break with your husband has been a positive solution and was necessary because only a thoughtless person could leave you in the fifth month of pregnancy and you certainly could not expect anything worth-while from living with him. You must build your life with a person who is stable and worthy of you. The fact that you will have a child is a great joy for you and there is nothing shameful about it. The child will be your closest and most beloved creature, he will be your little friend and therefore there will never be a void in your personal life. The child cannot interfere with your studies: we have crèches, kindergartens and you have a mother who will help you to take care of the child. In our country one must not be afraid to have a child; a child is the pride and joy of a mother. You will have an easy, painless and safe childbirth. You are a fourth-year student and it will not be long before you are successfully graduated from the institute, which is very important to you . . .," etc.

The patient listened very attentively to all the physician had to say and after the session left reassured and persuaded that the physician was right. After several such interviews all of the patient's complaints disappeared. She regained her peace of mind, her normal nocturnal sleep was restored, the headaches discontinued and she was no longer tormented by fears and anxieties. She regained her interest in the studies, made good progress, gave birth safely and the maternal feeling for the child received its normal development. She never thinks of her husband (observation by Z. Kopil-Levina, 1940).

Thus, we see that by a skilful approach of the physician to the patient's personal experiences several sessions of explanatory therapy sufficed to remove the consequences of the derangement of the higher nervous activity.

Another method of psychotherapy used on the conscious level is based on the administration of direct or indirect verbal suggestion by the physician. This method may produce a positive therapeutic effect only if the tone of the patient's cerebral cortex is rather sharply reduced. Usually, an unfavourable situation created by the ailment or by the living conditions traumatizing the patient may be the factor that reduces the tone of the patient's cerebral cortex. However, the physician's suggestion may also be such a factor.

Direct verbal suggestion on the conscious level can be successful only if it is made by a physician who enjoys authority with the patient. This suggestive influence must be exerted on the patient when he least expects it, i.e., when he is not prepared for it, since such an unexpected influencing factor must create in the patient's cerebral cortex a sufficiently stable point of excitation isolated by negative induction from the other sections of the cortex. Outwardly this manifests itself in the patient's confusion, embarrassment or perplexity. Suggestion in this case must be of a nature of a short imperative instruction or even order which admits of no objection or doubt.

The following is an example of a successful direct therapeutic suggestion made on the conscious level.

2. Subject Z., 22 years old, has suffered from vomiting for the period of 3 months of her pregnancy, can take only liquid food and in very small portions at that, and cannot endure any odours (tobacco, soap, etc.). In addition, she has migraine-like headaches every morning lasting from 20 to 30 minutes, chills and palpitations; this is followed by vomiting with the patient in a state of prostration for 2 to 3 hours.

Following an anamnestic interview the patient was acquainted with cases in which the vomiting of pregnant women had been cured by verbal suggestion and was asked to come the following day for treatment.

But while seeing the pregnant woman out of the office we suddenly stopped her at the door and looking in her eyes rapidly uttered in an imperative and firm voice: "Well, it's all over with it, you do not vomit any more." "But you haven't started treating me yet," the patient retorted somewhat embarrassed and surprised. "Yes, we have," was the answer. "That's the way it's going to be. No use talking. Go home and be well." The patient left perplexed.

The following day she appeared in a fine mood and joyously stated that "since yesterday it has been all over as if by magic." In the evening she supped (for the first time in 3 months), was indifferent to odours, did not have a headache for the first time since her pregnancy and in the morning ate without a feeling of nausea.

We observed the patient for a period of a month and she continued to feel quite well. She was demonstrated by us at a medical conference. She gave birth safely and at term.

In this case the sudden effect of a strong imperative suggestion created in the patient's cerebral cortex, which was in a weakened state under the influence of a complicated pregnancy, a focus of concentrated excitation that negatively inducted other regions of the cerebral cortex. This evoked in the patient a state of embarrassment and perplexity. It is to be supposed that the strong wave of negative induction which arose at this time removed the firmly fixed cortico-visceral pathological symptoms. It was achieved only by a direct imperative suggestion made to the patient on the conscious level. It will be noted that to succeed this suggestion required not only the creation of an inhibited state in certain regions of the cerebral cortex, which was accomplished by the imperative tone of the verbal influence, but also that it be directed at removing the disorder.

Indirect verbal suggestion can also be successfully administered with the patient in the waking state. One of the very demonstrative observations

of this type was described by us on p. 162; in this case psychogenic polydipsia and polyuria of many years' standing were removed by indirect suggestion.

Finally, such suggestion may be made on the conscious level during a psychoprophylactic preparation of patients for coming surgical operations, pregnant women for parturition, etc. In these cases the physician uses explanation, persuasion and direct and indirect suggestion which creates in the patient a positive attitude as regards the forthcoming event and helps the patient retain a complete peace of mind, that is, it activates the cerebral cortex. All the foregoing measures are intended to remove the inhibitory state of the cerebral cortex. It will be noted that the other methods of psychotherapy usually also pursue the same aim, i.e., an increase in the tone of the patient's cerebral cortex. There are reasons to affirm that in certain cases it is precisely the active state of the cerebral cortex that aids in the most successful resistance of the organism to the development of the ailment. Considerations concerning this question were put forward by I. Velvovsky (1952), while studies on animals were conducted by D. Pletsity (1954), et al.

As A. Ivanov-Smolensky and F. Andreyev emphasized in a number of their studies, the practice of protective sleep therapy in some diseases and states produces negative results. These cases, on the contrary, require therapy by excitation, i.e., activation of the cerebral cortex. The positive significance of the activation of the cerebral cortex in the struggle against labour pains and against premature parturition is also pointed out by I. Velvovsky (1952) who regards therapy by excitation as an important principle of treatment and prophylaxis based on Pavlov's physiological teachings. Moderate excitation of the cerebral cortex by negatively inducting the subcortex reduces sensitivity to pain.

N. Tatarenko (1948) showed that activation of the cerebral cortex reduced phantom pains. It should be noted that V. Bekhterev (1911, 1926) in his time insisted on strengthening the patient's nervous system.

Stimulatory psychotherapy is apparently especially indicated in the treatments of patients with pulmonary tuberculosis. Dejection, irritability and inclination for hypochondriacal complaints and high sexual excitability are specific of the mental state of tuberculous patients. Many authors observe in them a vasomotor and temperature lability, headaches, lack of appetite, disturbance of sleep or, contrariwise, excessive sleepiness, more or less pronounced psychopathic manifestations, high suggestibility and autosuggestibility, changes in mood and in character. From a gay person the patient becomes dull and melancholic, from quiet and complaisant—exacting and impatient.

All this is apparently conditioned by tubercular intoxication, but psychogenic factors may also be present. These factors are a direct result of a second signal re-elaboration by the patient of a very difficult pathological situation.

Our observations show that in the incipient stage of tuberculosis all these phenomena may be eliminated by a systematically administered stimulatory psychotherapy. The latter must be directed at raising the patient's spirits and suggesting a complete peace of mind, cheerfulness,

confidence in recovery, i.e., it must essentially improve the general tone of the patient's cerebral cortex.

The third method of psychotherapy also administered on the conscious level was proposed by Bernheim and was modified by V. Bekhterev (1911). The wakeful patient must be in a state of complete passivity and rest. For this purpose he must be put to bed (or in an armchair) with eyes closed and in a comfortable position in a warm and quiet room with weak lighting.

Under these conditions the authoritative word of the physician acts on the patient's cerebral cortex, while the stimulations of the external environment are greatly limited. This state of rest proves particularly favourable for the wakeful patient to perceive the verbal influence of the physician. The physician influences the patient verbally for the purpose of distracting him from the events he experienced or the factors unfavourable to him, as well as for strengthening his will, altering his behaviour, etc. Such influence is usually perceived by the patient *passively,* though somewhat critically.

The physician's verbal influence must be in this case of the nature of a motivated explanation, persuasion or affirmation. "This therapy," says V. Bekhterev (1911), "repeated in a number of sessions not accompanied by hypnotic sleep usually brings success even in serious cases." He believes that treatment by suggestion on the conscious level is based on the fact that many of the neurotic phenomena are due either to autosuggestion or unintentional suggestion. Hence it is clear that it is "necessary to employ countersuggestion or therapeutic suggestion to remove the most distressing symptoms of the disease. We call this method the Bernheim-Bekhterev method. The following is an example of its successful application.

3. Patient M., 39 years old, complained of excessive irritability, inability to control herself and at the same time excessive weakness, indecision, impatience and fussiness, continuous depression and anxious expectation "of something grievous." She said she had begun to fear and suspect everything, found fault with everybody and everything and was jealous of her husband. Because of this she had a feeling in the last few months "of not wanting to live like that." The entire syndrome had begun developing 8 years previously, soon after a surgical operation (extirpation of a uterine fibroma). She asked us to help her out of this distressing state and mainly to rid her of her jealousy, apparently conditioned by the fact that her husband who was 3 years her junior, repeatedly told her that "her time was already up." Since she really looked older than her age she found herself under the suggestive influence of her husband's words.

Six sessions of psychotherapy were conducted by V. Bekhterev's method on the conscious level, the suggestions being of a reassuring and explanatory nature. A marked improvement was observed after the third session: the patient grew much calmer, controlled herself, her jealousy disappeared and the age difference with her husband no longer troubled her. After the fifth session she stated that the pre-menstrual period which was usually very hard on her (excessive irritability and melancholy) this time was quite normal. A month later the pre-menstrual period was normal again; jealousy did not recur and the patient felt good.

With this method of verbal therapy the patient retains his critical attitude to the physician's words which, while undoubtedly aiding in their complete perception by the patient, may at the same time limit the force of the suggestive influence. It is precisely for this reason that such influence sometimes proves insufficient to eliminate the neurotic state which has acquired the nature of pathological inertness.

PSYCHOTHERAPY IN A DROWSY STATE AND DURING SUGGESTED SLEEP

A drowsy state is characterized by a certain decrease in the positive tone of the cerebral cortex, a light inhibition in the cortical cells. In this case the cortical cells partly retain their former trace bonds, external stimulations continue to influence them and certain motor reactions (for example, voluntary movement of the eyelids) also persist.

This state can be attained by anybody. It is of definite importance to the success of psychotherapy. It deserves mention because the physicians have an erroneous idea that in order to administer a verbal suggestion we must induce a "deep hypnotic trance" in the patient, though in a number of cases a drowsy state is quite sufficient. This is true not only of the psychogenic, but also of the somatogenic neuroses.

What determines the success of psychotherapy administered to a patient in a drowsy state?

The success is apparently due to the fact that in a drowsy state the positive cortical tone is reduced and the inhibitory state of the cortical cells somewhat prevails.

It will be noted, however, that in this state of the cerebral cortex the removal of the pathophysiological mechanisms underlying the neurotic ailment is far from always being possible, especially if their fixation occurred under conditions of a deeper inhibitory state of the cerebral cortex or was caused by stronger factors traumatizing the mind. That is why it is necessary in a number of cases to produce a deeper sleep inhibition, to the point of the "somnambulistic phase" of suggested sleep. It is only in this state that any competing influences are fully excluded and the physician's suggestive words acquire their decisive therapeutic value. A deeper inhibition of the corresponding divisions of the cerebral cortex is also necessary when "touching" the patient's painful point by the words of suggestion produces a negative reaction.

The content of the suggestions must correspond to that of the pathogenetic factors, and be of the nature of explanation, persuasion or affirmation. It must create in the patient an indifferent attitude to the causal factors, make him forget them and form new positive attitudes (logically grounded motivated suggestion during suggested sleep proposed by V. Bekhterev and Löwenfeld). It should be noted that the chronaximetric studies conducted by F. Maiorov (1939) during suggested sleep testify that the sleep inhibition of the cortical cells may somewhat weaken during the suggestions, i.e., precisely at the moments new dynamic structures are formed in the corresponding divisions of the cerebral cortex.

As stated before, the cerebral cortex outside the rapport zone is inhibited under conditions of suggested sleep and disinhibited only in the sections at which verbal suggestion is directly aimed. The coupling function of the cerebral cortex in the rapport zone is not only retained, but also enhanced due to the positive induction conditioned by the onslaught of inhibition from the surrounding regions of the cerebral cortex. In this case both the coupling and analysing functions are merely fully subordinated to the verbal suggestions of the hypnotist. Owing to this, the state of suggested sleep greatly favours the success of the therapeutic verbal suggestions.

In certain cases, verbal suggestions prove extraordinarily effective even in profound and long-continued neurotic ailments which are not amenable to the influence of other methods of psychotherapy.

Why does verbal suggestion influence the cortical dynamics of the patient so effectively precisely during suggested sleep?

According to Pavlov's teachings, the reason is precisely that despite the reduced tone of vast regions of the cerebral cortex under the action of sleep inhibition the physician still has the opportunity of directly influencing every aspect of the patient's cortical activity. This is due to the fact that under these conditions the patient's cerebral cortex is functionally divided into sleeping and waking divisions. By his verbal influence on its waking division (rapport zone) the physician has under these conditions an opportunity of exerting a particularly efficient and finely differentiated direct influence on any aspect of the cortical activity. He is capable of influencing the trigger and corrective activity of the cortex, of removing its functional disorders and of influencing through it the subcortex, the individual aspects of the activity of the entire animal-endocrine-vegetative system, the intimate biochemical and trophic processes, tissue reactions, etc.

The thing is that the physician must be able to make proper use of his influence and successfully administer the complex corrective, guiding, stimulating and restorative psychotherapy required in any particular case. After producing a positive effect, the physician must sufficiently firmly fix it by corresponding suggestions and prevent the possibility of analogous disorders recurring in the future.

Despite the past convictions that the success of hypnosuggestive therapy was temporary, the positive catamnesis in some of our clinical observations continued for twenty years and more. The considerable reduction in the time required for treatment, confirmed by most of the observations we have quoted, is also one of its very positive aspects.

Patient P., 46 years old, complained of a distressing neurasthenic syndrome (extreme irritability, dyssomnia, rapid onset of fatigue and nightmares) which he developed nearly two years previously after a grave conflict at his place of work accompanied by an insult to his extremely morbid pride. This resulted in the development of the aforesaid neurotic state and complete incapacity (he was put on an invalid list). Tonic hydrotherapy and treatment with bromides proved of no avail. Because of this we conducted six sessions of psychotherapy with the patient in suggested sleep; in a very short time (6 days) the normal state of the patient, his normal sleep and efficiency were restored (Fig. 81).

The incipient positive therapeutic effect may, in individual cases, be obtained during the very first session of suggestion conducted under the

initial signs of suggested sleep. However, it usually requires from five to six psychotherapeutic sessions during suggested sleep to produce a stable therapeutic effect. Sometimes, when the neurotic symptoms are particularly stable, it may require from 20 to 30 sessions of therapy and even more. The time required for the treatment is determined by the degree of inertness of the cortical processes. A particularly rapid positive effect of psychotherapy during suggested sleep is usually observed in people in whom sleep is easily induced.

How deep must suggested sleep be in order to favour the success of psychotherapy?

As we know, the basic mechanism of suggestibility requires that the normal more or less unified work of the entire cortex be broken up as a result of a dissociation of the cerebral hemispheres into sleeping and waking divisions, which makes the suggestion given in the absence of the usual influences from the other parts of the cortex "irresistible." It follows that suggested sleep must be deep enough to permit a sufficiently full functional dissociation of the cerebral cortex into sleeping and waking divisions. F. Maiorov's data (1950) tell us that the somnambulistic phase of suggested sleep is determined precisely by the maximal ability of the subject's cerebral cortex to be dissociated into sleeping and waking divisions.

According to our dispensary and clinical observations, a very clear positive therapeutic effect is not infrequently observed during the lightest hypnotic state which, it will be noted, may take place after a number of absolutely unsuccessful attempts of psychotherapy on the conscious level.

Thus the hypnosuggestive method is the most correct method of psychotherapy precisely in cases in which the neurotic ailment originated under conditions of a phasic state of the cerebral cortex. In such cases, psychotherapy during suggested sleep or in any analogous or similar state is directly indicated. Hence, the high therapeutic value of this method. In addition, the *combination of two powerful therapeutic factors in this method —restorative sleep inhibition and therapeutic suggestion*—is of great importance.

It will be observed that psychotherapy during suggested sleep is mainly indicated:

1) In considerable stability of the pathological inertness of the syndrome (the "trigger point");

2) In neurotic states, the treatment of which on the conscious level, other things being equal, produced no positive effect;

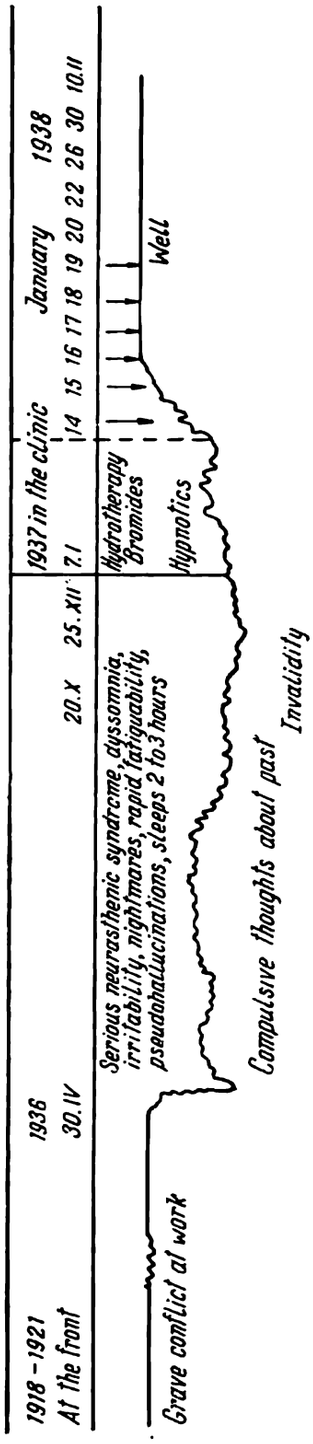

Fig. 81. Diagram showing development of neurosis and efficacy of hypnosuggestive therapy. Arrows indicate sessions of hypnosuggestive therapy.

3) For a rapid general reassurance of the patient with subsequent transition to explanatory and persuasive psychotherapy on the conscious level;

4) In psychogenic reactive depressions, sometimes even with delusions and in psychogeno-reactive paranoid syndromes;

5) For purposes of "hypnoanalysis," i.e., for obtaining by the physician the necessary anamnestic information which the patient has forgotten or to which he cannot refer on the conscious level because of its traumatizing influence on his mind;

6) As an auxiliary, purely symptomatic, therapeutic method in somatic ailments;

7) In differential diagnosis.

The method of hypnosuggestive therapy is contraindicated in paranoia, paranoid form of schizophrenia and psychasthenia. Lastly, hypnosuggestive therapy should not be immediately instituted if the patient is prejudiced against hypnosis and is afraid of it.

THERAPEUTIC VALUE OF SUGGESTED REST

We have always used long-continued suggested sleep as an auxiliary therapeutic method. It is usually employed in more or less grave conditions as a concluding method after a course of psychotherapy and serves the purpose of restoring the functions of the cortical cells and consolidating the therapeutic effect obtained.

Even short suggested sleep not infrequently exerts a positive influence on the patient's nervous system. This is indicated by very numerous observations of many authors, as well as our own and those of our associates. In a number of cases even a state of light suggested sleep produces a certain therapeutic effect of itself, without any special suggestions. Thus, upon awakening from the very first suggested sleep some of our patients frequently report the disappearance of pain or unpleasant sensations.

At the same time, as we know, long-continued suggested sleep is by its very nature a prolonged restorative sleep inhibition. All this makes it a therapeutically valuable method of influencing the cortical dynamics in all the functional disorders of the higher nervous activity. It will be observed that the striving to replace long-continued drug-induced sleep by suggested sleep, which can be induced for many hours, in completely justified, especially since the use of various pharmacological hypnotics for inducing long-continued therapeutic sleep has many negative aspects. In addition, the depth of suggested sleep can be regulated and the necessary therapeutic suggestions made to the patient.

The superiority of suggested sleep over pharmacological sleep was experimentally demonstrated by M. Petrova (1945), Pavlov's closest associate.

Comparing the effectiveness of drug-induced sleep with conditioned reflex sleep in neurotic dogs suffering from eczema and skin ulcers Petrova discovered that the hypnotic inhibition which passes on to usual deep sleep proves the most effective as regards the rapidity and duration of the therapeutic action. After long-continued condition reflex sleep Petrova noted, in

particular, greater resistance in the dogs to various influences weakening the nervous system. At the same time the "speed with which the trophic cutaneous disorders disappear" is, according to her, "directly dependent on the depth of the hypnotic sleep inhibition."

All this is confirmed by our observations and testifies to the necessity of deepening the prolonged suggested sleep of patients by corresponding verbal suggestions.

Long suggested sleep is particularly indicated in cases in which exhausting factors affected the nervous system for a long time, for example, after most distressing experiences, serious surgical operations, difficult protracted parturition, grave somatic ailments, general fatigue, high nervous excitability, etc. In a word, it is required whenever it is necessary to raise the tone of the cerebral cortex, regulate the state of the cortical processes, enhance the processes of assimilation and increase anabolism. Surgeons may make wide use of protracted suggested sleep during the pre- and post-operative period by assigning this part of the work to specially trained medical personnel.

There are reasons to believe that long-continued suggested sleep may be of considerable practical importance in the prophylaxis of hypertension, in treating ulcers, in early stages of tuberculosis and, generally, in all cases in which it is necessary to restore the maximum of the patient's health in a short time. As for neurotic ailments, protracted suggested sleep is one of the most important therapeutic methods used directly after the removal of the basic pathogenic factors of the given ailment by verbal suggestion.

Thus, according to A. Prusenko's observation conducted at the dispensary of the Ukrainian Psychoneurological Institute in 1926, long-continued suggested sleep exerted favourable influence on adolescent patients who suffered from increased excitability of the nervous system (group method of using protracted suggested sleep). According to Z. Kopil-Levina and I. Tsvetkov long suggested sleep restored the strength of a woman in childbirth (during protracted parturition) which ended without the use of forceps.

M. Kashpur obtained positive results from prolonged suggested sleep in the treatment of neurotics.[1] Particularly good results were observed by I. Strelchuk (1951) who used long suggested sleep in treating dipsomaniacs.

Induction of a physiological state of "complete rest" in a patient who is in a state of suggested sleep is an important auxiliary therapeutic method. The "complete rest" usually induced by special suggestion is used in more or less distressing conditions as a concluding method after each session of psychotherapy and serves to enhance and consolidate the therapeutic effect obtained.

It should be emphasized that, as before stated, the active state of "complete rest" differs qualitatively from the usual state of suggested sleep and from drug-induced sleep. The state of suggested "complete rest" apparently involves *a maximal activation of the restorative function of the cerebral cortex.* At one time such "complete rest" was used purely empirically by

[1] Report to the scientific conference of the Central Psychoneurological Hospital of the Ministry of Railways in honour of the reunion of the Ukraine with Russia (May 1954).

many old hypnologists and especially (as stated before) by the Stockholm physician Wetterstrand, though the physiological mechanisms underlying this sleep were not known before the work of Pavlov's school.

The following observation illustrates the effectiveness of the state of complete rest suggested during suggested sleep.

A 66-year-old patient was extraordinarily weak, emaciated and adynamic after influenzal pneumonia. She had an aversion for food and suffered from persistent insomnia.

Sessions of suggested complete rest were conducted. The first of these sessions lasting half an hour gave the patient enough strength and appetite for several hours. The repeated sessions lasting eight hours each and conducted on subsequent days fully restored her appetite and night sleep. The patient began to build up her health and within a week felt sufficiently strong and could freely move about.

The various neurotic states and the conditions under which they develop, the pathophysiological mechanisms and type peculiarities of nervous systems underlying them determine the variety of the psychotherapeutic methods used both on the conscious level and during suggested sleep.

We usually institute combined psychotherapy correspondingly: at first (after obtaining the anamnesis) explanatory therapy, then suggestion during suggested sleep followed, when necessary, by suggested rest. Such hysterical reactions as aphonia, mutism and various pareses form an exception because one session of direct or indirect verbal suggestion on the conscious level or during suggested sleep suffices to remove all these morbid symptoms. Thus, clinical observations and facts taken from life force us to recognize the expediency of administering not only elementary but also complex verbal suggestion.

Of course, a detailed anamnestic interview must be conducted first of all, and then psychotherapy in the form of explanation and persuasion can be administered on the conscious level. Afterwards, if it is necessary, suggestions are made according to the Bernheim-Bekhterev method with their subsequent strengthening in a drowsy state and, if necessary, during suggested sleep. We usually content ourselves with the drowsy state alone endeavouring to deepen the latter when the verbal suggestion traumatizes the patient by reviving traces of the states experienced in the past or present.

As stated before, a considerable duration of the pathological state cannot at all serve as an obstacle to its rapid and final removal by verbal suggestion during suggested sleep and sometimes on the conscious level. As an example, we shall recall a patient who had suffered from a grave emotiogenic dysfunction of the stomach for twenty years and who was radically cured in the course of one week by the mixed method of psychotherapy (positive catamnesis for 20 years).

Thus in *making an individual approach to each patient,* depending on the nature of the neurotic state, the anamnestic data, the type peculiarities of the higher nervous activity, etc., we use one or the other of the aforementioned psychotherapeutic methods. The proposition that *the same mechanism, according to which the neurotic state originated (and was then consolidated), must also be employed in removing this state by psychotherapy* appears quite reasonable to us. For this purpose the patient must

be put in the same state of increased suggestibility. This may be a state of rest (lying with eyes closed), a drowse, or suggested sleep.

This course of psychotherapy is also important for the analysis of the pathophysiological mechanism because it is not infrequently observed that certain neurotic symptoms which do not yield to influence on the conscious level are easily removed in the drowsy state or in the first session of suggestion during suggested sleep.

Lastly, in an enormous majority of cases we conclude the psychotherapeutic sessions by a more or less prolonged session of suggested complete rest induced during suggested sleep. This greatly aids in enhancing and consolidating the therapeutic effect produced by verbal suggestions, balances the cortical dynamics, raises the cortical tone and, in virtue of this, is a very important and effective therapeutic method.

It should be emphasized, though, that whatever the form of psychotherapy its success requires a positive attitude of the patient to the physician and complete confidence in the latter, authority enjoyed by the physician with the patient, a skilful approach of the physician to the patient with a consideration of his individual peculiarities and to the difficulties which he has experienced and which have developed the given neurotic state. The success of the therapeutic influence exerted by verbal suggestion is directly dependent on the physician's tact, the ability to win authority with the patient, the experience and competence of the physician and, of course, his profound attention to the patient.

In our psychotherapeutic practice we are always guided by V. Bekhterev's instructions (1911) to the effect that "... as powerful as the force of suggestion, in some cases, and psychotherapy, in general, may be, considering their influence also on the somatic functions of the organism, there are no reasons for avoiding drug and physical treatments indicated in the particular ailment in addition to the treatments by suggestion, etc." "We believe," he says in another place, "that modern medicine must not confine itself to one particular method but must make use of all the methods of treatment available to the physician in order to achieve corresponding success."[1]

The clinical material cited by us shows that many neurotic ailments develop according to the physiological mechanism of suggestion and autosuggestion. In this we also see the theoretical substantiation of the expedience of using methods of verbal suggestion both on the conscious level and during suggested sleep.

The opponents of the method of hypnosuggestive therapy ought to know that by using this method we are not doing anything essentially unusual. *We influence the patient by the definite content of the suggestion* and do so in the direction necessary for the patient in order to remove from his cerebral cortex the pathological dynamic structures (or the structures which at the particular time have lost their vital importance) and to create new temporary bonds and dynamic structures.

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[1] In the clinical observations cited in this monograph psychotherapy was administered in its pure form for the purpose of proving its efficacy.

By emphasizing the important positive value of pathogenetically correct verbal suggestion, we regard as absolutely ungrounded the negative attitude which still exists among physicians towards it and the ignoring of the extensive theoretical and practical importance of the method of psychotherapy during suggested sleep. Attaching special importance to the hypnotic sleep of an animal with its cerebral cortex in a pathological state Pavlov observes that "in experimental ailments of the nervous system individual phenomena of hypnosis nearly always come to the fore and this warrants its acceptance as a normal method in the physiological struggle against the pathogenic agent."[1] According to M. Petrova (1949), the hypnotic state "has been the most efficient of all the therapeutic measures used on a large number of animals for a period of many years."

Recognizing the highest degree of reactivity and, consequently, exhaustibility of the nervous cells in the cerebral cortex, Pavlov believed that this exhaustibility served "as the main impetus for the appearance in the cell of a special process of inhibition, *economical process* (emphasis by the author) which not only prevented the further functional destruction, but also aided in restoring the expended substance capable of stimulation,"[2] because a process of restoration, i.e., a shift in the direction of anabolism, really takes place during suggested sleep.

All these considerations should put an end to the judgements, still current and absolutely ungrounded, that the hypnotic state is "pathological" and "harmful" for human health.

REASONS FOR FAILURE OF PSYCHOTHERAPY

Until now, we have intentionally cited mainly examples of *successful* administration of psychotherapy. It was done for the purpose of showing precisely what it offered, how and when it should be administered to obtain the required ends. There are cases, however, when some methods of psychotherapy are useless or insufficiently effective.

What reasons can there be for unsuccessful administration of psychotherapy?

There may be many reasons. Psychotherapy may prove ineffective, first of all, because of an error in the diagnosis of the ailment or because it is insufficiently thought out and superficially administered by the physician (for example, without disclosing the psychogenesis or because of an erroneously understood psychogenetic significance of some factor or other, etc.). The error may lie in the unskilful and tactless approach of the physician to the patient or in that the physician was unable to establish the necessary contact with the patient and to ensure complete confidence on the part of the latter. The inefficacy of psychotherapy may be conditioned by some circumstance in the life of the patient which the physician has failed to take into consideration, for example, an unfavourable situation in the family or at his place of work. The reason may also be in the pathological inertness of the patient's cortical processes. The

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 460.

[2] *Ibid.*, p. 285.

failure of psychotherapy to produce stable results in people belonging to the extremely weak type of nervous system and requiring the use of strengthening physio-pharmacotherapy is a case in point. The patient's lack of suggestibility may serve as a big obstacle to the success of psychotherapy in cases in which hypno-psychotherapy is directly indicated. Lastly, the reason may be in a concealed desire of the patient to continue being ill (for example, when the patient does not care to rid himself of dipsomania) or appearing ill.

The stubborn use of some one method of psychotherapy by the physician (for example, the hypnosuggestive method) and his neglect of other methods, for example, explanatory therapy on the conscious level, indirect psychotherapy and, finally, training methods (an agoraphobia patient practising walking through the streets by himself), etc., may prove to be an unfavourable factor.

Of course, we admit a beginning physician may be insufficiently experienced in administering hypnosuggestive therapy. But it does not really require so much experience; the physician must only be able to induce sleep verbally and to make therapeutic suggestions. He also needs sufficient tact and thoughtfulness. The young physician must acquire these practical skills while he is still at the medical institute.

The following observation will show how carefully the physician must approach the causes underlying the neurotic ailment in individual cases.

Patient F., 36 years old, housewife, applied to the dispensary of the Ukrainian Psychoneurological Institute in the summer of 1947 with complaints of "pains in the head and the heart," of the "bulging out of the eyes," insomnia and a general apathetic-abulic state against the background of which she sometimes had attacks of clouded consciousness with improper behaviour.

Several long anamnestic interviews revealed the following. She had married on the insistence of her relatives, never loved her husband, was dissatisfied with him and fault-finding, though at the same time a true wife, loving mother and good housekeeper. Several years ago she had a severe uterine haemorrhage and tonsillitis. The present morbid state appeared a year ago and continued to grow worse. In the spring of 1947 the patient's condition turned very much for the worse: she grew anxious, inactive, neglected her home, constantly whined that she was "a burden to everybody," often cried and pestered her relatives and physicians with endless complaints of various somatic sensations.

The attacks of clouded consciousness manifested themselves in that by displaying anxiety she searched for somebody, called her daughter who was no more. Because of the sharply aggravated headaches she was placed in the clinic of nervous diseases where the following diagnosis was made: "Diencephalic post-infectional syndrome." In the clinic her state grew worse and she began to talk many things in to herself. Thus learning of the diagnoses of her room-mates' diseases and observing their morbid symptoms she immediately found them all in herself and ascribed all these diseases to herself. After six weeks of treatments she was discharged without any improvement. She became even more absent-minded and did not let her husband out of her sight. Hoping that treatment by suggestion may help her she applied to a certain psycho-

therapist who conducted 5 sessions of hypnosuggestive therapy. During these sessions the patient slept but made no improvement. After this she came to the dispensary.

Taking into consideration the uselessness of the treatments in the preceding therapeutic institutions, the dispensary physician acted differently. He set up the conditions for the patient under which she could talk for a long time about her ailment, her family life, her tastes, interests, etc. The physician patiently listened to her. During these interviews he observed that, while the patient talked a great deal about herself, she was not frank and concealed the intimate aspects of her life which the physician could only guess.

Finally, when the physician was able to make out the patient's condition and understood her family life, he told the patient carefully and in a casual manner about the family relations and experiences of a heroine of a well-known English novel painting a picture of the ugly family life this heroine had created. In conclusion the physician made, as a reader, a moral inference reproaching the behaviour of the heroine and evoking sympathy for her husband. This conversation was aimed to show the patient that there was an analogous situation in her own family: her husband, an engineer, worked a lot, came home late, never had enough sleep, on his days off he travelled far to buy produce, giving all his energy and leisure to the welfare of his family. On the other hand, the patient, who was physically well, thought she was incapable of working, her husband had to do all of the housework for her and the patient's condition, finally, drove him to distraction.

The patient listened very attentively to the physician and did not interrupt the interview, but never came back to the dispensary. It turned out that after this interview the patient was completely transformed: she became lively, active, her indispositions, anxiety and fears disappeared, and she was even-tempered and industrious. To the question what precisely had changed her, she answered: "One word of the physician saved me and I became well." As it was subsequently ascertained, this word was "doll"; the patient understood that the physician made a direct analogy between her and the parasitic heroine of the novel comparing the latter to a doll. According to the patient she "was hurt by this comparison": it had made her feel that she had played the same pitiful role in her own family (observation by M. Kashpur).

It is thus obvious that in addition to other therapeutic influences (explanations and persuasions) the analogy drawn by the physician aided in reorganizing the patient's mind and helped her find her place in life.

It will be noted that the sessions of verbal suggestion conducted by the first psychotherapist as hypnosuggestive therapy produced no therapeutic effect apparently because they were conducted purely mechanically without any "needless talk," while "composure," "forgetfulness of the past," "cheerfulness," "necessity of changing the attitude to the husband," etc., were suggested to the patient. The physician did that in a dry manner and failed to obtain the necessary detailed anamnestic data.

Thus in certain cases a skilful and considerate approach of the physician to the personal experiences of the patient may remove the disorders and help the patient set up normal family or social relations.

CHAPTER XVI

METHODS OF VERBAL SUGGESTION

> ... Suggestibility is a phenomenon inherent in everybody. It is deeply rooted in the nature of man and is based on the direct influence of words and other psychic impulses on the course of associations, the actions and deeds and various functions of the organism.
>
> *V. Bekhterev*

GENERAL PRINCIPLES OF BUILDING THE FORMULAE OF SUGGESTION AND PERSUASION

It should be taken into account that under favourable conditions the words of suggestion may exert an enormous influence on all processes occurring in the cerebral cortex. These words comprise the formula of suggestion.

The formula of persuasion is built on a system of logical arguments and consistent proof, for example, "teaching of parturition" in the system of psychoprophylaxis of labour pains, anti-alcoholic chats, etc. The physician explains to the patient the real state of affairs, the groundlessness of the inferences made by the patient as regards the facts that trouble him or the events that traumatize him, etc. Thus, the physician's words must give rise to a new system of relations in the cerebral cortex limiting the significance of the pathological dynamic structures which have developed in it and must form new vital principles correctly orientating the patient in the given sphere.

In other cases, therapeutic suggestions must imperatively inform the patient of what the suggestion has already done. For example: "The event you have experienced has already receded into the distant past and no longer troubles you; you think of it very calmly, your life now proceeds very normally, you feel good, your night sleep is deep and undisturbed." Or: "You have already forgotten all your distressing past experiences and when you happen to think of them casually they no longer worry you." Or in treating a dipsomaniac: "You no longer have any desire for alcoholic drink; on the contrary, you feel an overwhelming aversion for them or regard them indifferently."

At the same time, the formula of suggestion must be expressed in a few simple and understandable words corresponding in their nature to the individual peculiarities of the patient, the level of his intellectual development, the form of his ailment, etc. It must not contain anything superfluous.

In more complicated cases the formula of suggestion must be extended, the text of the suggestion thought out and edited in advance. In this case, it may be prepared in written form beforehand. When making a suggestion, the physician must pronounce the words authoritatively and firmly, confidently and calmly, repeating the formula of suggestion several times (at certain intervals) in order that the conditioned reflex bonds created by it may become sufficiently consolidated. It should be particularly emphasized that each word intended for suggestive influence during suggested sleep is for the patient's cerebral cortex a precisely differentiated stimulus, the meaning of which will have the necessary therapeutic force and significance only if the patient understands it.

The success of a verbal suggestion is in certain measure determined not only by the content of the formula of suggestion itself but also by the expressiveness of speech, i.e., the sound intensity, the intonation of the voice, particular accents corresponding to the meaning of the uttered words, etc. Besides, during hypnotic sleep the suggestions must not be made in a loud voice.

The content of the formula of therapeutic suggestion, its structure, its direct and clear pathogenetic purposefulness are of enormous importance. Complete removal of the pathological syndrome not infrequently requires a number of repeated (5, 10, 20) sessions of suggestion.

The words of suggestion must not reflect the attitudes of the physician himself, especially if they do not correspond to the patient's social principles or point of view, or affect his pride, his relations with his relatives, etc. It is but natural that such unjustified interference in the personal life of the patient may defeat the purpose of the suggestion because it will inevitably meet with the patient's direct resistance.

At the same time, the formula of suggestion must always be very clear and definite. The suggestion must not be referred to some indefinite future; the physician must not say, for example: "Your nervous system will improve (?), your attacks will cease (?), you will (?) feel good," etc. In this uncertain formula of suggestion the physician deals with some unknown future when all this will have to happen.

As stated before, in some cases suggestion during suggested sleep may have the nature either of a motivated explanation or persuasion, or an authoritative instruction or advice (motivated suggestion according to V. Bekhterev and G. Löwenfeld).

The formula of suggestion may envisage its immediate or deferred effectuation. The latter case must provide for a definite time or definite conditions for the effectuation of the suggestion.

There can be no doubt that the patient's emotional state while the therapeutic suggestion is made must be in the centre of the physician's attention. The formula of suggestion he uses must fully reflect it. At the same time, the words of suggestion must also be emotionally coloured.

Formation of a dynamic structure connected with an excessively strong negative emotion sets up, as before stated, the conditions for the emergence of a trigger point with more or less complex neurotic syndromes.

A suggestion: "The event you experienced is already a thing of the past and no longer troubles you" repeated several times on end produces inhibition at the focus of concentrated stimulation which, in turn, leads to a weakening of the surrounding zone of negative induction and by virtue of this, to the removal of the "trigger point" itself. The words: "Your experience is a thing of the past" are an inhibitory conditioned reflex (conditioned inhibition) aimed directly at removing the pathological state which the "trigger point" is.

Thus, the construction of the formula of therapeutic suggestion is the result of a detailed study by the physician of the conditions under which the neurosis developed. The psychotherapist must therefore prepare himself in a certain measure to every session of therapeutic suggestion as, say, a surgeon prepares himself for a surgical operation, by thinking out his tactics beforehand and foreseeing the possible circumstances and complications by virtue of which the suggested word may act contrary to the physician's intentions.

The formula of suggestion used by the physician really assumes very great importance because it is precisely this formula that contains the key to the success of psychotherapy. It is essential that the physician's suggestion acts on the patient's cerebral cortex which is in a state of reduced tone conditioned both by the suggested sleep and the neurotic ailment, and is connected with it by a negative asthenizing emotion. By virtue of this the words of the suggestive therapeutic influence exerted during suggested sleep may be fixed for a long time and firmly enter the cortical dynamic structures. Any possibility of their iatrogenizing influence must therefore be foreseen by the physician and fully removed. That is why the words of the therapeutic verbal suggestion must be chosen very carefully and must be sufficiently well thought out and weighed, and presented in the form which does not admit of any ambiguous interpretation. This is the crux of the matter because the entire skill of a physician consists in the *pathogenetically correct administration of the suggestion.* The physician's mission thus becomes particularly clearly creative and at the same time extraordinarily responsible. The formula of the verbal suggestion must be not only very clear, but also properly aimed. It must produce the necessary stable and deep reorganization in the patient's cortical dynamics.

It should be emphasized that the generally accepted expression "to treat by hypnosis" is in this case not quite exact because the very state of suggested sleep "treats" only to the extent to which it is a prolonged restorative sleep inhibition and may be referred to as hypnotherapy. As for the direct therapeutic effect in the form of "forgetting" the events that traumatized the mind, etc., it is produced, of course, only by the very content of the therapeutic suggestions, which may be referred to as hypnosuggestive therapy.

It should be added that upon the patient's awakening after the session of suggested sleep the physician must make sure that the patient has

entirely freed himself of sleep inhibition. In case of incomplete awakening, i.e., incomplete disinhibition of the cerebral cortex, phenomena of sleepiness may persist for a long time. To avoid this, a light drowse must be induced and the patient must be awakened from it with the words: "You are now completely awake and are as usually alert."

As V. Bekhterev observes (1911), this repeated suggestion "removes all the undesirable phenomena resulting from hypnosis." "Hence, it should be clear," he emphasizes, "that only a physician should have the right to hypnotize and that sessions of hypnosis and suggestion by incompetent people, especially non-physicians, are under no circumstances admissible."

Thus, we are arriving at the conclusion that it is not the hypnotic state itself that can be harmful, of which many people were formerly afraid, but precisely the words of the physician or the unskilfully made suggestion which traumatize the mind.

We consider ungrounded the fears that frequent sessions of verbal suggestions during suggested sleep may weaken the patient's volition or that he may develop high suggestibility. By virtue of the extensive functional mosaics of the cerebral cortex the physician can influence by verbal suggestion only certain cortical dynamic structures without affecting the enormous number of the other structures. This excludes the danger of a general increase in suggestibility or of any weakening of the patient's volitional traits. A certain increase in suggestibility can and must take part as regards the hypnotist.

Phenomena of increased suggestibility may also develop in the waking state; this is observed, for example, in all cases of close association of people in which this increased suggestibility is determined by the growing confidence of one person in another.

A weakening of the volitional traits may occur only if a special verbal suggestion aimed precisely in this direction is made, which, of course, is opposed to the basic moral principles of a physician. This danger does not, therefore, exist at all. If enormous confidence has been displayed in the physician by placing a considerable assortment of various physical and chemical means at his disposal, though they may prove toxic, poisoning or excessively active if incorrectly used, there are no reasons to deprive him of the right to induce with the same degree of responsibility a state of suggested sleep in the patient and to make the corresponding physiologically substantiated verbal suggestions to the patient in this state.

We must also note the circumstance very well known in literature and testifying that suggestions opposed to the direct personal interests of the subject or to his moral principles are, as a rule, never effectuated. We had ample opportunity of repeatedly convincing ourselves of this during the studies of people with a somnambulistic phase in hypnosis. Despite their seemingly uncommonly high suggestibility they far from effectuated all the suggestions made to them.

Taking all this into consideration, we emphasize the necessity of observing the rules of "asepsis" of the suggested word. The physician can and must use verbal suggestion during suggested sleep and do it with the confidence and calm with which a surgeon wields his knife.

Thus, the state of suggested sleep as such and the pathogenetically correct therapeutic verbal suggestion are harmless. There is, therefore, every opportunity for making use of the hypnosuggestive method for therapeutic, diagnostic or research purposes connected, for example, with the study of a number of physiological processes and states observed in the human organism (K. Platonov, 1930).

ADMINISTRATION OF INDIRECT SUGGESTION

Indirect suggestion is sometimes extremely valuable in psychotherapeutic practice when direct verbal suggestion proves ineffective. In this case, the formula of suggestion is enhanced by the very definite and concrete conditions under which the suggestion "will have to be effectuated." These conditions may be either simple or more or less complex.

Thus, if the therapeutic objective is confined, say, to obtaining the effect of painlessness (for example, during parturition) the method of indirect suggestion is very simple. It comes down to about the following suggestion made to the patient on the conscious level: "You will now be given an injection (or a medicinal microenema, etc.) after which your pains will immediately disappear, you will fall asleep and will sleep well for two hours." To carry out this prescription of the physician, some indifferent substance (physiological saline solution, a pill of streptocide or vitamin, etc.) is usually administered, which under corresponding conditions may, nevertheless, very quickly result in the effectuation of the suggestion.

In a more complicated case, in which the objective is thus to treat a neurotic ailment, the physician acts as follows. After analysing the ailment he prescribes for the patient some indifferent mixture (or physiotherapeutic procedures indifferent to this particular ailment) and accompanies this prescription by the following words of suggestion to the patient on the conscious level: "I have prescribed a mixture for you (or procedures) which should be taken so many times per day for a period of so many days. *Each time you take the mixture* (or the procedure) your ailment will grow noticeably weaker, you will feel much better and your appetite and night sleep will greatly improve. When you *finish taking this prescription* you will be entirely well: this mixture (or procedure) will cure you." This suggestion must be daily reinforced by the physician in the same form, say, during his morning rounds.

Thus we have in both cases a definite prescription of the physician, the action of which is concrete, purposeful and reinforced by verbal suggestion. It should be emphasized that the effectuation of these suggestions is not very probable if this concrete form of the therapeutic prescription is not imparted to them. On the other hand, if this method is used the effect will in some measure manifest itself already after the mixture (or procedure) is taken the first few times and will subsequently increase, finally reaching the highest value by the time *all* of the physician's prescriptions are carried out.

As we see, the positive result of the therapeutic influence is obtained with the given method precisely by *suggestion reinforced through the first signal system* by the concrete therapeutic prescription.

What physiological mechanisms are involved in its effectuation?

The simultaneous, concerted and purposeful action of two factors on the patient's cortical regulatory function, i.e., the verbal suggestions of the physician and the very process of carrying out his prescription, which constitute a single complex of therapeutic influence, are apparently of decisive importance in this case. It aims not only at *mobilizing* the regulatory function of the patient's cerebral cortex by *imparting to it the necessary direction*, but also by *reinforcing* it with corresponding first signal conditioned reflex bonds.

Furthermore, since during a complex suggestion the carrying out of the therapeutic prescriptions is spread over several (5-6) days, its result becomes palpable to the patient himself, which enhances still more the degree of the suggestive influence of the entire complex. It will also be noted that for the suggested changes to occur in the state of the patient's organism requires time not only for their effectuation, but also for their consolidation.

The method of indirect therapeutic suggestion contains a conditioned reflex factor concealed from the patient, this factor directly influencing his cortical regulatory activity. This method is of very great importance to therapeutic medicine. There are very many observations emphasizing the considerable efficacy of psychotherapy administered by indirect suggestion. This method can be used by all medical institutions, both clinical and polyclinical. It was used by Y. Kannabikh, V. Zelenin, et al. (1935), in treating internal diseases, by A. Myasnikov (1954) in treating hypertension, by S. Berg in minor surgical operations, by N. Bezyuk (1941) and A. Kartamyshev (1942) in treating certain dermatoses, and by us (1930, 1940, 1941) in anaesthetizing childbirth, in toxemias of pregnancy, etc.

Here are a few examples.

1. Woman in childbirth named K., 33 years old, giving birth for the first time, reacts strongly to labour pains, is extremely excited and worried. After corresponding persuasions of the necessity of injecting an anodyne subcutaneously, 1 ml. of an indifferent substance was injected into a buttock following which the woman quickly calmed down and observed with satisfaction that she had no more pains and felt, as she said, only a sort of "numbness in the small of the back." Examination by mirrors showed that the cervix of the uterus opened by $1\frac{1}{2}$ fingers. Labour pains continued, in view of which the same injections were repeated. The woman did not complain of pain any more and was calm until the very delivery of the baby. In her testimonial she wrote: "After the administration of the anodyne I felt absolutely no pain with the exception of a pressure in the small of the back throughout the remaining period of the parturition." The uterine curettage and the sutures of the cervix were also painless (observation by K. Pronayeva).

2. Woman in childbirth named S., 25 years old, giving birth to her first child. Complains of keen pain. During the reassuring interview she was given sodium bicarbonate with the suggestion: "This is a hypnotic. You will now fall asleep and will feel no pains." Several minutes later the woman fell asleep and slept well for 1 hr. and 15 min. After awakening she complained of "tolerable pain." The same powder with the same assertion was given again, the patient fell asleep again and slept for an

hour. After awakening she no longer complained of pain. Judging by her behaviour and composure there were really no pains. Spasms occurred more frequently, but the woman was perfectly calm. A water microenema as "preventing pain" was administered in the beginning of the labour in order to maintain the obtained effect. There were no pains until the end of the period of expulsion and the woman had no pain when the baby's head was coming out (observation by I. Tsvetkov).

I. Tsvetkov and K. Pronayeva anaesthetized the childbirth of 197 women by the method of indirect suggestion with the following results (according to the 5-grade system): grade 5 for 28.4 per cent, grade 4 for 29.4 per cent, grade 3 for 24.4 per cent, and grade 0 for 18.8 per cent. These figures ought to command serious attention.

Thus we see that indirect therapeutic suggestion is always connected with a concrete object, *is made through the second signal system, but is effectuated by a stimulus acting on the first signal system.* Besides, it must always be made in an unconditional imperative form.

During the administration of *any* drug or physiotherapeutic procedure, the role of suggestion cannot be excluded, which must be taken into consideration when evaluating the efficacy of the particular therapeutic means. It is not always possible, however, to determine how much of the effect is due to either the purely medicinal or physiotherapeutic influence. At any rate, we believe that all therapeutic measures should necessarily *be accompanied* by corresponding pathogenetically purposeful verbal reinforcement.

The therapeutic suggestion *accompanying* and *reinforcing* the physician's prescription may be effected as follows. After ascertaining the conditions and peculiarities of the given ailment the physician prescribes the necessary treatments (medicinal, physiotherapeutic) and in addition addresses approximately the following words of suggestion to the patient in the waking state: "You have been given a prescription which you will receive for a period of so many days on end. Each dose of the mixture prescribed and the procedure will produce a very favourable effect on you. With each dose taken by you your ailment will weaken markedly, you will gain strength, and your appetite and night sleep will improve. As soon as you have taken all of the medicine you will be entirely well because the treatments prescribed for you will cure you." The same suggestion must be daily reinforced by the treating physician in a similar form as he makes his rounds.

In this case the action of the therapeutic prescriptions will be *augmented* and *reinforced* by verbal suggestion. This method very often greatly enhances the efficacy of the medicine.

USE OF AUTOSUGGESTION AND DREAMS IN PSYCHOTHERAPY

Observing on the necessity of elaborating the problem of the use of autosuggestion V. Bekhterev (1911) said: "... there can be no doubt that it is essentially important to make use of autosuggestion for therapeutic purposes and that special methods must be elaborated for it." According to his observations, the best time for autosuggestion is before going to

sleep and after awakening when the cells of the cerebral cortex are in a phasic state.

Bekhterev believes that a definite formula of autosuggestion should be worked out for each individual patient and that this formula "should correspond to the given case and should be uttered by the patient in the first person in an affirmative form and in the present rather than in the future tense." Let us assume, says Bekhterev, that a person in a habit of drinking wine wants to cure himself of this ailment by autosuggestion. He must utter the autosuggestion in the following form: "I have pledged not only to stop drinking, but even not to think of wine; I have now fully freed myself of the pernicious temptation and no longer think about it." These words of autosuggestion must be uttered in a low voice "many times before going to sleep and in the morning, hardly awake and with full concentration." Bekhterev believes that many patients can benefit from such autosuggestion. It should also be borne in mind that effectuation of autosuggestion requires a certain positive emotional state.

Bekhterev proposed (1890) one more method of autosuggestion used during suggested drowsing. The patient repeats in a low voice the formula of suggestion uttered by the physician but in the first person, for example: "Recollections of my insult no longer worry me," or: "I'm now absolutely indifferent to alcoholic drink," etc. The physician and then the patient repeat these suggestions two or three times. There can be no doubt that this method based on the physiological mechanisms of conditioned reflex bonds, elaborated and fixed in the sphere of second signal activity, particularly, the activity of the speech-motor analyser, is also of practical value.

When the patients are taught the methods of autosuggestion it is good to demonstrate to them the ideomotor phenomenon described by I. Tarkhanov, which, as is commonly known, very well illustrates the proposition that the "idea of movement is already the beginning of the movement."

This purely didactic method consists in the following: a small weight—a metal ball, a tea-spoon, etc.—is suspended from a string 30 to 35 cm. long, the physician holding its free end between the thumb and index finger of his right hand; while sitting on the chair before the patients surrounding him he raises his right hand to the level of his head and slightly bending his arm in the elbow holds it motionlessly in this position. Waiting until the oscillations of the suspended weight stop the physician tells the patients that he will now imagine, i.e., will begin to talk it in to himself, that the weight is starting to swing like a pendulum in a certain direction, for example, from him towards the patient sitting opposite him. All those present immediately begin to observe that though the arm of the physician is motionless the suspended weight begins to swing, gradually swinging higher and higher precisely in the direction indicated by the physician. By changing the direction of the intended motion it is possible similarly to force the load to swing in a different direction or instead of swinging like a pendulum to swing in a circle either clockwise or counter-clockwise. Finally, by imagining that the weight is stopping and has stopped it is possible to stop it.

In this connection Pavlov observes that "as long as you think of a certain movement (i.e., you have a kinaesthetic idea) *you involuntarily perform it without noticing it.*"[1] (Emphasis by the author.) Thus "each time we think of a movement we actually perform it abortively. Consequently, the innervational process may go on, though it really does not."[2]

Such an "experiment" usually impresses the patients very much, convinces them that the phenomena of autosuggestion are real and impels them to work in this direction.

The following is an example of autosuggestion successfully used by a patient in the treatment of dermatosis (eczema of the hands) developed against a background of a neurasthenic ailment.

Patient I., 43 years old, a physician, familiar with the methods of suggestion, complained of psychogenic eczema she had developed on both hands, of a general neurasthenic state and considerable emaciation of several years' standing caused by her itching eczema which sharply reduced her efficiency.

After useless customary treatments the patient applied to us for psychotherapy. The conditioned reflex mechanism underlying the formation and development of her eczema was explained to her, after which she read A. Kartamyshev's monograph (1942) and saw a demonstration of Tarkhanov's ideomotor phenomenon; following this she began resolutely to combat her strong desire to scratch the skin where it itched, barely succeeding by means of distracting her own attention. This, nevertheless, somewhat relieved the itch. But the moment she looked at her hands the sensation of the itch recurred and a blister with a serous liquid appeared and soon began to fester before her very eyes *without any scratching.* Owing to this she developed an obsession, a tense expectation of these blisters to form. To fight this obsession she began to *suppress this fear and these expectations* by efforts of her will. She talked calm and indifference in to herself and disregarded the itch. After a month of stubborn work she ceased *noticing the itch* and being afraid of it, but not by means of distracting her attention from it (which was very hard). On the contrary, she began *to think of the itch,* but think of it *calmly, without anxiety.*

This struggle lasted about two weeks and as a result no thought, idea or mention of the eczema occurring without any excitement *provoked the itch or the eczema any more.*

Six years later, after a long-continued psychic trauma (it lasted about 6 months) she suddenly developed an itch on the right forearm. Scratching this place produced blisters with a serous liquid. By persuading herself that this was a relapse of the same eczema and by using the aforesaid methods she cured herself. It will be observed that the new psychic trauma produced an eczematous affection in a new place without provoking a relapse in the old.

In this case the patient managed by autosuggestion, which required enormous effort, to create in the cerebral cortex strong foci of concentrated excitation which negatively inducted the regions of pathological stimula-

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 446.

[2] *Ibid.*, p. 360.

tion, in other words, she was able purposefully to influence her own cortical activity and through it the cutaneous trophics.

In such cases we sometimes use the suggestion of dreams as an auxiliary therapeutic method.

Thus to a patient who was stubbornly afraid of standing and walking by herself (stasibasiphobia) we suggested during suggested sleep a dream in which she "saw herself walking freely and easily through shops." By becoming effectuated this dream impressed her so much that she grew confident of recovery and was now ready to persist in the exercises prescribed for her and consisting in walking through the apartment and then through the streets by herself. After this dream her condition radically improved and she was more confident of her recovery than ever.

It is possible to "revive in the memory" of the patient, who is in a state of suggested sleep, the content of forgotten nocturnal dreams which were indirectly connected with the development of some particular neurotic symptoms. It will do well to remember this when analysing the genesis of a neurotic state. We illustrate this by one of our observations (1925).

1. Applying to us in reference to her neurotic condition patient B., 22 years old, told us that it developed after she had once awakened in a state of inexplicable anxiety. Since that day she has anxiously expected something terrible to happen, has been continuously worried, irritable and had palpitations, cold extremities and dyssomnia.

The sudden development of the neurotic condition after nocturnal sleep made us suspect the possibility of some dream which may in some way or other have been connected with the onset of the ailment. To make sure, we induced a state of suggested sleep in the patient and made her recall her forgotten dream by deepening the suggested sleep with a series of repeated awakenings and sleep inductions and corresponding suggestions. The patient told us she "had dreamt that burglars had broken into her apartment." Without bringing her out of the suggested sleep we gave her an explanatory suggestion and also suggested that she forget her dream, after which she was given a one-hour suggested rest. Upon awakening the patient was perfectly calm and cheerful, all the phenomena of the former neurotic condition having disappeared. After that she was under our observation for a period of several months, and felt fine.

Nocturnal dreams sometimes reflect the efficacy of the already administered psychotherapy.

2. Patient K., 32 years old, was shell-shocked at the front in 1921 and lost consciousness; since then and until 1923 he had suffered from fits of "commanding hysteria"; six months after the shell-shock he developed epileptoid attacks (convulsions, loss of consciousness and involuntary micturition). The following symptoms were observed from the very onset of the disease: profuse perspiration, irritability, facial tic, nightmares and inability to endure loud sounds and music. Once, after attending the opera, he had to stay in bed for two weeks. Began stuttering in 1921. In 1931 he applied to a railway psychoneurological dispensary in reference to the aggravation of all these phenomena following a serious psychic trauma (sudden illness and death of his wife).

General improvement was observed at the third session of suggestions administered during suggested sleep. Besides, there was a change for the

better in the nature of his constant nightmares. This expressed itself in the fact that instead of dreaming of *fleeing* from the attacking enemy the patient began to dream of *defending* himself and, after the fifth session of psychotherapy, of *attacking* his enemy. In addition, after the seventh session he saw on the advice of the physician who was treating him a sound motion picture through to the end, whereas before the treatment he could not endure even the sound of a metronome (when attempts were made to induce sleep with its aid). The treatment was discontinued after the tenth session. The patient grew much calmer, his behaviour was adequate, there were no more crying spells, his spirits rose and he stuttered much less. He could now calmly endure even strong sound stimuli, slept well, the hyperhidrosis diminished and he put on some weight. Several months later he wrote to the dispensary expressing his gratitude for "the new lease on life"; he considered himself healthy (observation by M. Kholodenko).

3. Three sessions of hypnosuggestive therapy with suggestions of reassurance and recovery were administered to a patient, artist by occupation, in order to relieve a reactive neurotic condition. After the first session he felt considerably relieved and during the third session dreamt that the physician who was treating him was confidently cutting a "tumour" out of his chest with a sharp knife. The operation was painless and bloodless. Following the operation (in his dream) he had a feeling of relief in his chest and awakened with a sense of joy and elation. After this session all of the unpleasant sensations and pains in the chest, as well as the anxiety and compulsive thoughts and ideas, disappeared completely and he regained normal sleep and efficiency (observation by M. Kashpur).

Thus, in the given case, the experienced feeling of relief in the patient, apparently belonging to the artistic type of higher nervous activity, reflected itself in his first signal system in the form of a symbolic picture of a dream (see example 4, p. 375 for details about this patient).

The foregoing examples show convincingly enough that the content of dreams may in a number of cases indirectly testify to the degree of efficacy of the administered psychotherapy.

METHODS OF SLEEP INDUCTION AND AWAKENING

In conclusion we shall consider the methods of inducing sleep by suggestion and of awakening.

Before putting the patient to sleep for the first time it is necessary to have a preparatory interview with him for the purpose of explaining the essence of this therapeutic method, why he needs it, how it may help restore the activity of his nervous system and remove the disorders.

If the patient *is afraid of hypnosis* this fear must be removed by explaining to the patient that there are no reasons for it because hypnosis is a necessary and beneficial therapeutic method which puts the patient in a state of incomplete sleep. It may at this time be explained that *to hypnotize means to put to sleep like a mother puts her child to sleep* and that it has been scientifically demonstrated that in the state of a suggested drowse or suggested sleep *the brain reacts better to the words of suggestion made by*

the physician and that they are better fixed in the brain by virtue of which they exert a long-continued influence.

Before inducing sleep the patient should be placed in a comfortable armchair or on a couch and told to assume the posture in which he usually falls asleep; the patient may lie either on the back or a side with his back to the light and facing the physician. It should be pleasantly warm in the room or else the patient should be well covered. The room should be isolated from noise, have somewhat dim lights and contain nothing bright or gaily coloured that might distract the patient's attention because the fewer outside stimuli the sooner will inhibition spread over the cerebral cortex.

When hypnotizing the patient it should be borne in mind that the success of psychotherapy does not require that the patient be fast asleep. In a number of cases it is sufficient to induce only a light drowse, i.e., the initial phase of the division of the cerebral cortex into sleeping and waking sections. The patient should be told about this beforehand considering the fact that he may be bewildered and may doubt the success of the treatment if he is not fast asleep.

At the same time the patient should be warned that while being hypnotized he must not be tense and must not "force" himself to fall asleep because this may interfere with his falling asleep. He must only calmly and peacefully prepare himself for sleep. As for the physician himself, he must make ready to hypnotize the patient and devote all his attention to it, manifesting necessary firmness and persistence and at the same time retaining complete calm and self-confidence.

To induce sleep the physician must use corresponding words and if need be auxiliary physical methods. The latter may express themselves, for example, in the form of weak rhythmic stimulations of one of the analysers or simultaneously several analysers for the purpose of developing the inhibitory process in them. The physician may use rare beats of a metronome (one beat every 1 or 2 seconds), ticking of a clock or watch, monotonous stroking of the patient's hand, head or forehead; sometimes the patient is asked to fix his eyes on some bright point, etc.

At the same time the physician should say approximately the following sleep-inducing words: "You are already calm enough to doze off and fall asleep. You are beginning to feel pleasantly languid, sleepy; your arms and legs are growing heavy, your eyelids are also growing heavy, they seem to be filling with lead and you can no longer resist sleep. You can hear my voice very well. I shall now count *slowly* to 10 and with each count you will feel more and more sleepy: one ... two ... three ... (and so on until ten). You are falling asleep, you are falling fast and pleasantly asleep."

These words should be uttered in a low voice, monotonously, slowly and calmly but at the same time sufficiently clearly and confidently. Individual sentences should be repeated several times.

The patient should be firmly convinced that the sleep which is being suggested to him really *comes as it were of itself* and that he increasingly succumbs to this state.

The subsequent sleep-inducing words may be as follows: "You are now in a state of complete rest, you are breathing evenly, easily and deeply.

You have become completely oblivious of all your daily troubles, concerns and impressions and you are paying no attention to your surroundings. You continue to perceive my words very clearly. Nothing seems to trouble you, you have no unpleasant sensations, you feel a pleasant weakness, your arms and legs have grown heavy, your eyelids have become heavy, you feel more and more drowsy, you have no desire to move or open your eyes, your eyelids are closed, you are falling asleep, you are falling fast asleep, you are asleep."

These sleep-inducing suggestions should be repeated from time to time, gradually assuming the nature of something that has *already happened*: "You no longer feel your body, your eyelids are firmly closed, you already feel pleasantly restful, you have already acquired a peace of mind, you have no more worries, you perceive my words still more clearly and increasingly yield to them."

If the patient still shows no signs of falling asleep, the physician should continue with the hypnotization and emphasize more insistently: "You can no longer move any member of your body and you want to lie perfectly quietly. The more you hear my voice, my words, the firmer do your eyelids close and the faster you fall asleep."

Some persons become sleepy two or three minutes after the beginning of sleep induction and soon fall fast asleep; in others sleepiness and sleep develop more slowly, only ten to twenty minutes after the beginning of the session; in still others it is impossible to induce even a light drowse during the first session and it appears only in the subsequent sessions. This circumstance undoubtedly prevents the physician from producing a sufficiently rapid effect in all cases. To expedite the onset of sleepiness and sleep it is therefore recommended that the physician tell the patient at the very first session that "with each session the patient will become sleepy faster and faster and will fall deeper and deeper asleep."

By these methods, which contribute to the formation and fixation of positive conditioned reflexes to the word "sleep" in the patient, it is possible very soon to reach a point where the patient in the subsequent sessions begins to feel drowsy and falls asleep at the very first words uttered by the physician. In addition, to put the patient to sleep it does well in some cases suddenly and imperatively to utter in a loud voice the command: "Sleep!" This method, as we know, puts in operation the physiological mechanism of transmarginal inhibition underlying the "ancient hypnosis" (hypnosis of animals) used by Charcot, Danilevsky, et al.

It was said above that to influence the patient by suggestion there is no necessity at all of inducing *deep* sleep. In most cases it is enough to elicit the lightest drowse or the lightest general torpor in order fully to effectuate the suggestion. In some cases, however, deep sleep is necessary, for example, when the therapeutic suggestion deals with the cause which traumatized the mind and which may provoke in the patient an undesirable negative emotional reaction.

At the same time excessively deep sleep inhibition is also undesirable because it may prevent the effectuation of the suggestion especially if suggested sleep shows a tendency for transition to a state of complete sleep. It will be remembered that all these peculiarities of falling asleep and of sleep vary greatly with individuals and that for the successful effectuation

of the suggestions the most favourable depth of suggested sleep is the one in which (retaining the rapport) there is a subsequent amnesia of the content of the suggestions made. This will apparently be the "somnambulistic phase" of sleep characterized by a deep dissociation of the cerebral cortex into sleeping and waking divisions produced by the verbal sleep induction (F. Maiorov).

Various attendant circumstances which aid sleep induction should also be taken into consideration. Some persons fall asleep more easily mainly under the influence of first signal stimulations (beats of a metronome, ticking of a watch, stroking the hand or head) and do not fall asleep in response to the word "Sleep," while others, on the contrary, easily yield to verbal suggestions, but cannot fall asleep when stimulated by first signal influences. In still others sleep is induced by the joint action of the second and first signal stimuli. As stated before, these peculiarities were ascertained by I. Strelchuk (1953). The *customary conditions* under which a person falls asleep may be of great importance.

Thus, we were able to induce sleep in a certain patient only by stroking his back. It turned out that in his early childhood he had always been put to sleep by this method. After useless attempts to put another patient to sleep we were able to do so only by letting him have a book because, as he told us, he was in the habit of falling asleep with a book in his hands. In this case several words suggesting sleep were enough for the book to fall out of his hands and the patient to fall asleep.

When it is necessary rapidly to induce sleep in a person who yields with difficulty, we can recommend the so-called Oskar Vogt "fractional method." For this purpose the attempts to induce sleep are repeated *many times* in one session. In addition, various methods of *disguised* (indirect) suggestion may be used, i.e., instead of hypnotics the patient may be given various indifferent substances (for example a coated soda pill, etc.).

Lastly, an auxiliary dose of a hypnotic (for example, 0.75 to 1.0 chloral hydrate or 0.1 barbamil about 10 to 15 minutes before inducing sleep) is now widely used in daily practice.

In concluding our few remarks on the methods of sleep induction we deem it necessary to observe that in some extremely rare cases the hysterical patient, while being put to sleep, may have a reactive hysterical fit in the form of crying or convulsive jerks. A similar hysterical reaction may also develop in an anxiously nervous person who fears hypnosis.

Thus, one of our patients became extremely excited once when he felt that, while he was falling asleep, his extremities began to grow numb, because this revived the traces of the sensations experienced by him in the past under chloroform anaesthesia.

All these conditions can be easily relieved by persistent reassuring countersuggestions: "Take it easy, the attack is over, everything is all right and you may now calmly go to sleep." If necessary, the hypnotic session must be discontinued until the patient grows perfectly calm. In these cases it is sometimes possible to ascertain the reason for such reactions by means of corresponding questions made during suggested sleep or after awakening the patient from it.

It will be observed, furthermore, that sleep induction may sometimes be extraordinarily complicated if the patient's neurotic ailment has

deranged the activity of one or several of his analysers, especially if it has impaired his auditory analyser. This question shall be considered in greater detail below.

As for awakening from suggested sleep, the following words are customarily used: "Wake up. Upon awakening you will feel well rested and cheerful. I shall count to three and, as I count, you will gradually awaken and will be completely awake at the count of 'three.' I am beginning to count: one ... two ... three.... Open your eyes, you are fully awake." It is not advisable to awaken the subject from suggested sleep rapidly; the physician must avoid a too rapid, sudden transition from sleep to wakefulness. In cases of incomplete awakening the continued drowsiness can be easily removed by corresponding verbal influences on the conscious level.

It sometimes happens that upon coming home from a session the patient continues to be sleepy, which may worry him and the people around him. The patients should be warned about this possible sleepiness and told that there is nothing unusual about it. Moreover, the patient may even be advised to have a little more sleep upon coming home, if necessary.

A difficulty of awakening after a session is sometimes observed. It usually occurs in people who have difficulty in awakening even from natural sleep. In these cases it is necessary repeatedly and more energetically to awaken the patient, which should in no way disconcert the physician.

Some people believe that awakening from deep suggested sleep is possible only within a few days. This, however, is not true. At any rate, neither our associates nor we have ever observed it.

CHAPTER XVII

PHYSICIAN AND PATIENT

> If the patient does not feel better after an interview with a physician, the latter is no physician.
>
> *V. Bekhterev*

PHYSICIAN'S TACTICS

Even in early antiquity, when there was no scientific medicine, it was believed that a physician must display a maximum of attention and tact for the patient and be able to safeguard him against harmful influences and worries.

Thus, the Indian Brahman medical laws forbade the physicians to tell the patient about a possibly unfavourable outcome of the disease or about events connected with material damage to the patient and demanded that the physician "refrain from any manifestations of rage, hatred, cunningness or greed," etc.

Russian internists have long since attached great importance to "psychic treatment." Thus, G. Zakharyin (1909) laid special stress on the fact that "with rare exceptions the seriously ill are by the very virtue of their morbid state in a depressed mood and regard the future gloomily and with little hope." For the success of the treatment the physician "must therefore encourage the patient and instil in him the hope of recovery or improvement in his health, as the case may be." Zakharyin says that "this encouragement sometimes immediately induces sleep which the patient has not had for some time. And this is not the only thing that raises the patient's spirits. If we recall the facts belonging to the sphere of what is known as *suggestion* we shall understand that here prognosis coincides with treatment," whereas telling the patient about all the apprehensions of the physician "is always a mistake on the part of the latter and sometimes an actual crime."

"Everybody knows," says Bekhterev (1898), "what magic health-giving influence one reassuring word on the part of a physician is likely to exert and, contrariwise, how fatally, in the literal sense of the word, the severe

cold verdict of the physician sometimes acts if the latter does not know or won't know the power of suggestion."

Foreign psychotherapists (P. Dubois, 1912; I. Déjèrine, 1912; A. Forel, 1928; et al.) were of the same opinion. "The first crossing of swords between the physician and the neuropath," writes Déjèrine, "determines the outcome of the battle. If no mutual sympathy is born from the very first interviews, it is useless to go on."

All authors attached great importance to the emotional sphere, i.e., to the necessary affective connection without which psychotherapy cannot be successful. It was not ascertained, however, what the essence of these important conditions was and why the state of the patient's emotional sphere was of such great importance. And only Pavlov succeeded by a strictly scientific objective method in getting the answer to the question why precisely the "affectiveness" and "emotions" of the patient played such an essential part and ensured the success of psychotherapeutic influence.

In connection with this, let us recall Y. Popov's (1927) early investigations which showed that the elaboration of a motor conditioned reflex on the basis of an electrocutaneous pain stimulation was directly connected with the emotional (respiratory) reaction in the subject: in people suffering from Parkinson's disease, in addition to the absence of a respiratory reaction, the conditioned reflexes as a rule either failed to develop or arose only with great difficulty and were extremely unstable. These and other facts denote the important role played by the condition of the subjects' emotional sphere or, in other words, of the state of the closest subcortical region.

V. Gakkebush (1927) also showed that the verbal suggestions of emotional states in persons affected with Parkinson's disease were not effectuated, which he could judge by the absence of reactive hyperglycaemia. Similar data were obtained by Hoff and Wermer (1928).

The data obtained by V. Osipova (Leningrad Institute of the Brain) are instructive in this respect: in children kept in the "conditioned reflex cabin," the sight of which was associated in them with a negative emotion—a feeling of fear, it was impossible to develop stable conditioned reflexes. But when this cabin was rebuilt into a beautiful children's little home, the conditioned reflexes began to be rapidly elaborated, this time against the background of a positive emotion. Osipova's data were but recently confirmed by M. Linetsky.

A simultaneous elaboration of four conditioned reflexes to various light stimuli was attempted in patient B., who suffered from stasiphobia (see p. 341). Each attempt failed, however, whereas in healthy persons and in other patients these reflexes were usually elaborated after one or two combinations. The patient's fear of the study was the reason for the failure. The patient explained her persistent fear by the fact that she was "afraid she could not cope with the complicated task of the study." To rid the patient of her fear the following suggestion was made during suggested sleep: "Do not be afraid; there is nothing hard about it." When the patient awoke all the conditioned reflexes were obtained very quickly.

All the foregoing testifies that the success of psychotherapy directly depends on the patient's emotional state and that the physician's behaviour and all the surroundings must evoke in the patient a corresponding *positive* reaction.

Besides, a very important part is also played by the emotional state of the physician. During his association with the physician the patient develops an intricate complex of conditioned reflex bonds which determine the nature of his relations with the physician. With reference to this Bekhterev says that the patient comes to the physician "with an emotion of expectation," his nervous system is "in a state of readiness," with a ready "tendency" (A. Ukhtomsky) to react to a very definite stimulus. It is precisely this circumstance that can aid in the easy formation of new stable conditioned reflex bonds developed in the patient under the influence of the physician's authoritative words.

It will be noted that G. Sorokhtin ascertained (1925) that during the elaboration of a conditioned reflex by the speech method the emotional colouring of the verbal signal was of very great importance. Thus a verbal signal uttered inertly produces no conditioned reflex, whereas a "verbal order" given in a higher tone may rapidly produce a stable conditioned reflex. Let us also recall our observation (see p. 18) in which the word "Hurts" said in a loud voice caused a stronger reaction on the part of the respiration of the subject who was in a state of suggested sleep. Similarly, the fatigue of the investigator or various distracting external or internal factors which may influence the tone of his verbal orders, etc., evoke in the subject conditioned reflex reactions of varying strength.

There can be no doubt that the physician plays the same part as the investigator and that his positive tone supports and strengthens the readiness of the patient's nervous system for a lively reaction to everything that is connected with the physician. We must not overlook the important circumstance that, as M. Yanovsky (1923) says, "psychotherapeutic influences begin the moment the patient comes to the physician. The patient thus proves that he has faith in the physician, is ready to follow his advice and succumb to his influence in the hope of recovery."

It should be noted that to influence the patient verbally means to create new dynamic structures in his cerebral cortex coupling in it new chains of positive and negative temporary bonds. A positive emotional state connected with corresponding endocrine-vegetative changes ensures rapid formation and firm fixation of these dynamic structures. Positive emotions, by influencing the tone of the cerebral cortex, enhance the functions of the cortical cells, i.e., new conditions facilitating formation of new dynamic structures arise.

How is the patient's confidence won and the necessary "inner bonds" between the physician and the patient ensured?

The patient must feel that the physician is attentive to his morbid state, which is necessary for complete frankness between the patient and the physician.

A frank anamnestic interview in addition to a detailed somatic examination therefore plays an essential role not only in disclosing the psychic and somatic aetiological factors, but also as regards the confidence and

sympathy of the patient for the physician and consequently the success of the treatment. That is why the more attention is paid to the anamnesis the first time the physician sees the patient (and when necessary during their subsequent meetings), i.e., the more attention is devoted to discovering the causes of the ailment, *the greater are the physician's chances to win the patient's confidence* and, hence, to achieve success.

The following case may serve as a good illustration.

A 23-year-old man came to the psychoneurological dispensary of the Ukrainian Psychoneurological Institute in 1930 complaining of a highly depressed state, apathy, loss of interest in life, work, faith in himself, his abilities and efficiency, of self-consciousness, weakening memory, irritability and fear of going insane. Before this ailment he had been active and sociable.

The anamnestic interview revealed that he had taken sick two years previously after a serious conflict manifesting itself, as he put it, in an unfair insult to him and very much hurting his pride. The patient could not endure the "unfair attacks" against him and the unhealthy atmosphere that arose around him in connection with this. Constant anxiety, nervousness and disturbed sleep, according to the patient, "undermined his nervous system." Despite the fact that seven months after the beginning of the conflict everything was decided in favour of the patient he continued to be distressed for the subsequent 2 years. He saw many physicians but all of them gave him the stereotyped answer: "All your organs are healthy." The patient's anxiety increased and he lost all faith in recovery and in physicians and medicines. "None of the physicians ever asked me about my troubles, while I myself did not dare tell them about them," the patient said coming to the dispensary of his own accord after deciding to resort to treatment by suggestion as "the last means."

After three anamnestic interviews, explanatory and reassuring psychotherapy was administered on the conscious level and several sessions of suggested rest were conducted. A calm attitude to the past experiences and a faith in his abilities and efficiency were suggested to the patient. He left us with a sense of great satisfaction and in leaving exclaimed bitterly: "Why didn't any of the other physicians look into my soul?"

Subsequent observation for 18 months showed that he again became the active worker he had been before. He went to school and continued to work on his former job (observation by F. Tseikinskaya).

In conclusion we shall cite a case described by M. Yanovsky (1923), which throws light on some important intimate aspects of the "psychic treatments" that imbued the medical tactics of S. Botkin, the outstanding Russian physician.

A man who suspected he had some pulmonary ailment once came to the dispensary and was received by Botkin. Before then he had made the rounds of all therapeutic clinics but had been told everywhere that he was only "ill with his own self-consciousness." These answers did not satisfy him, however. After examining and questioning the patient very carefully Botkin said: "Yes, you really have something, but so little that it is hard to notice. At any rate this is direct proof that your ailment is insignificant. Take this medicine and in a few days you will be all right." When the patient left, Botkin turned to the students who were there

and said: "He is quite well physically; but he does have something and that is his self-consciousness based on subjective sensations. If I had treated him like the other physicians he would continue to suffer, but now he left under the impression he had finally found a physician who understands his ailment and, consequently, can cure him whatever medicine he prescribes."

The new temporary bonds created by the physician must be systematically reinforced by other identical stimuli acting in the same direction in order that the new sound cortical dynamic structures become still stronger. That is why the junior medical personnel must also learn the fundamentals of psychotherapy to know that the success of treating a patient (by any method) is largely determined by skilful influence on his mind and always to have a curative and anodyne factor—the *word.* However, a word is a double-edged weapon that must be properly used. The patient should be talked to so as not to be traumatized. A great deal depends even on the construction of the sentence. Thus, it is not at all immaterial whether you say to the patient: "You may rest assured, with your health you will live many more years," or "You will die thirty years from now." Besides, it is necessary not only to be able to watch your words but also to *be able to keep quiet.* It is not in vain that the Romans called medicine the "art of keeping silent" (*ars muta*): the patient does not have to be told everything. The practical nurses should also have some knowledge of this because a casual, thoughtless word may sometimes cause irreparable harm both to psychotherapy and to any other method of treatment.

A favourable friendly atmosphere of the entire medical personnel must therefore be set up in every hospital. The entire personnel must be wholly devoted to the interests of the work because in any medical institution not only the *words* of the medical personnel, but also their behaviour with respect to the patients and the entire hospital regimen, with all of the stimuli connected with it, are of psychotherapeutic importance. This last circumstance should be borne in mind when the medical personnel, which must help the physician in everything he does and maintain his prestige in the eyes of the patient, is chosen.

Thus we see that not only the physician's prestige and his attitude to the patient but also the impression he makes on the latter already in large measure determine the success of the treatments since *the very personality of the physician* is essential. Thus, for example, Pavlov characterized Botkin as follows: "He actually charmed the patients: one word, one visit of the patient frequently sufficed to cure him. How often I heard his pupils, clinicists, admit sadly that the same prescriptions and apparently in similar cases proved ineffective, while in the hands of the teacher they worked wonders."[1]

Calmness, even temper and patience with respect to the patient, a sincere and warm striving to help him, tactfulness and mildness of treatment are the essential qualities which every physician must have if he wants to help the patient. Nothing brings the patient and the physi-

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[1] I. Pavlov, *Physiology of Digestion.* Publishing House of the U.S.S.R. Academy of Medical Sciences, Russ. ed., 1952, p. 419.

cian so close to one another as the physician's maximal attention to the patient's troubles. The psychotherapist must penetrate into his patient's mind (especially if the patient is a neurotic), must not only understand but also *feel* the agony of his soul, put himself, as it were, in the patient's place but so that the patient may also feel it. Unfortunately, it is not always that way. Some physicians pay too little attention to it and at times do not even take into consideration that the patient before them is one who needs urgent, and precisely psychotherapeutic, aid.

It will be taken into account that it may be the first time the patient suffering from a neurosis has decided to be quite frank about his intimate experiences which he not infrequently hides even from his closest relatives. This frankness is not infrequently the health-giving factor for his mental condition without which it seemed for a long time incurable.

An individual and tactful approach of the physician to a gravely suffering patient is most valuable and efficacious. All his medical erudition may turn out absolutely unnecessary and even useless if he does not wholeheartedly put himself in the patient's place.

According to A. Ivanov-Smolensky's testimony, Pavlov's approach to patients "was always uncommonly mild, tactful and cordial," and Pavlov himself never forgot that when treating a patient he always faced a living, and frequently keenly suffering, human being.

Thus, the nature of the reactions that arise in the system of the patient's higher nervous activity depends in large measure precisely on the physician himself. The personality of the physician, his manners with respect to the patients, the tone of his voice and his emotional state, which determines his behaviour towards the patients, are all complexes of enormously strong and significant stimuli capable of provoking very powerful, particularly emotional, reactions in the patient's nervous system. In M. Yanovsky's colourful expression (1923), the foundation on which "the prestige of the physician rests," as far as the patient is concerned, is his "respect for his profession, love for his science, humane feeling for the patient, and a calm and serious attitude to his work."

Even the Indian Brahman medical laws of antiquity, mentioned above, attached great importance to the personal qualities of the physician who must live a sober life and have "a nobility and purity of heart." Even his appearance was not disregarded: he had to have "a fine and decent appearance," he had to be "well dressed and his clothes had to smell sweet." An Indian adage said: "One may fear his mother, brother and friend, but never a physician."

Thus it was believed even in early antiquity that the very appearance of the physician may influence the condition of the patient, the course of his disease, and the success of the treatments.

There can be no doubt that in our days, too, the success of all types of therapy, including psychotherapy, whatever the form in which it is administered, largely depends on the *prestige of the physician* and the relations established between him and the patient. S. Korsakov, V. Bekhterev, Y. Kannabikh and V. Gilyarovsky in Russia, and Déjèrine, Forel and Dubois abroad pointed out a long time ago that the success of any treatment, particularly psychotherapy, depended on the confidence of the patient in the physician, the relations established between the patient

and the physician, on the "feeling" of the patient that the physician wanted to help him, on the "sympathy" of the patient for the physician, etc. It will be observed that as early as the eighteenth century when Danilo Samoilovich spoke about the plague he observed that "the confidence in the physician greatly helped the patients resist the fatal attacks of the disease." "We may affirm," he said, "that the toxin of the plague loses its force in proportion to the patient's faith in medical aid; hope raises the spirits of the patients, rendered weak by fear, and the internal symptoms cease to be serious and numerous from the very onset of the disease."

IATROGENIA AND DIDACTOGENIA

So far we have discussed the benefits which the physician is likely to give to the patient by his authoritative word. We shall now consider the opposite influence of the word on the patient's condition.

Every physician, whatever his speciality, is first of all a psychotherapist. Every interview between physician and patient concerning the latter's ailment contains, in most cases, elements of verbal suggestion made by the physician to the patient in the waking state.

A closer acquaintance of physicians with the methods of direct and indirect suggestion might prevent the harm involuntarily inflicted by the physician, when by a careless word or superfluous diagnostic terms, corresponding medical certificates, laboratory analyses handed to the patient, etc., he sometimes unwittingly provokes in the patient a series of new morbid symptoms or supports the existing ones thus negatively affecting the patient's mind.

We have already observed that a simple intonation may sometimes impart a meaning to a meaningless word due to which this word uttered by the physician may cause a psychic trauma. Moreover, a gesture alone may frequently prove more eloquent than an uttered word. The physician must therefore be able not only to speak to the patient but also to keep quiet. Thus, there are many ways in which the patient may be affected iatrogenically. That is why the physician must always be as tactful with the patient and strict with himself and with those around him as were such model physicians as S. Botkin and N. Pirogov.

This must refer particularly to the young medical generation because, as V. Gilyarovsky (1947) says: "Young physicians often wish to impress the patient with their erudition; they frequently tell the patient superfluous details of his ailment, making use of special terms."

According to Y. Kannabikh (1928), all this is negative psychotherapy. This must be particularly borne in mind by the internists and gynaecologists to whom many patients with visceral neuroses apply, the symptoms of their disease frequently being taken for organic. It will be remembered that not a single psychotherapeutic method, if a competent physician of any branch of medicine has fully mastered it, can harm the patient. At the same time a physician entirely unwittingly inflicts great harm to the patient by negative psychotherapy of which he himself is frequently unaware.

In our country this problem has been widely elucidated by psychiatrists V. Bekhterev (1911), Y. Kannabikh (1928), A. Gotsiridze (1929), V. Gakkebush (1932), K. Platonov (1933), S. Edelstein (1947), M. Kholodenko and M. Khaimovich (1934), and Y. Ter-Ovakimov (1934), gynaecologist V. Dik (1927), urologist N. Lezhnev, internists R. Luria (1928), M. Chernorutsky (1946), A. Samoilovich (1950), et al.

Of the foreign authors iatrogenia was dealt with by A. Forel (1911), Déjèrine (1912), and O. Bumke (1925); the latter named this type of affections suggested by physicians "iatrogenic" (from the Greek word *iathros* —physician).

Although a great deal has been written and said about the iatrogenic obsessive neuroses, accompanied in some patients by a distressing reactive depression, iatrogenia, "this freakish and unnatural phenomenon of our medical life," as M. Chernorutsky (1946) put it, is still encountered and no physicians see so much suffering connected with it as do psychotherapists.

We cannot but quote some of the careless expressions and remarks sometimes addressed by physicians of various branches of medicine to patients.

"Your heart is simply horrible," says an internist to the patient. "Be careful or you may get it paralysed."

"You won't live very long with a heart like this," said a physician to a 40-year-old patient who after that lived to be 65; because of these words uttered by the physician, however, the patient developed an obsessive neurosis of fear of sudden death for which she had to be treated for a long time.

"You are a lost woman. Who allowed you to become pregnant?" exclaims an obstetrician during an examination of a woman with a 7-month pregnancy. "I can't give you a new heart and your old one is no good at all."

"As a male, you're finished, and you better reconcile yourself to it."

"The aorta is very much distended. Why, that means death in the street," says one roentgenologist to another while X-raying the heart of a patient.

"You better always carry your passport and address with you because you may suddenly get a brain haemorrhage in the street," says a physician to an elderly patient with hypertension.

"Part of your brain has dropped out," says a young physician to a patient explaining to the latter the effects of cerebral disorders caused by infection, etc.

These remarks were taken from life, they were told to us by patients or their relatives. To each of these remarks the patients react by fear and a distressing and long-continued neurosis, and not only patients with a weak or weakened type of nervous system, but sometimes people belonging to the strong type of nervous system. The following examples offer an idea of the extremely serious consequences of this type of psychic trauma.

1. Patient O., 36 years old, came to us accompanied by his wife and complained of a number of phobias: fear of walking in the streets alone (that is why his wife always accompanied him), fear of staying alone in

the apartment, fear of going insane, fear of being alone with his son and fear of knives. He had been sick for six years and physiotherapy had given him but little temporary relief.

Cause: psychic trauma inflicted by a roentgenologist (the one making the statement about the aorta, mentioned above). A series of obsessive ideas gradually developed because of the constant anxiety about his aorta. Owing to this anxiety he did not get enough sleep. The neurasthenic syndrome was accompanied by unpleasant sensations in the head and a weakening of attention. Hence, the obsessive fear for his mind. "What if I go insane." By association he recalled that once, as a youth, he had visited a psychiatric hospital where he heard that the "insane beat their relatives and cut their own veins with a knife." A fear of being alone with his only son and a fear of knives developed according to the mechanism of autosuggestion. This obsessive neurosis was radically removed by several sessions of verbal suggestion in a hypnoid state.

2. Patient M., 49 years old, complains of obsessive fears of developing cancer and dying soon. He is in an anxious and depressed state: his sleep is disturbed and efficiency reduced. Has been sick for 8 months since a physician in a sanatorium told him the swelling in his hip may be malignant. When the patient said his swelling had been diagnosed as an ordinary lipoma, he was "medically" reassured in the following manner: "Be careful, these ordinary swellings become malignant." Since then the patient has developed a strongly pronounced depressive state. Combined psychotherapy and physiotherapy rid the patient of his obsessive idea and restored his efficiency in the course of two weeks (observation by A. Sosedkina).

Our following observation testifies to extremely grave consequences of an iatrogenic psychic trauma.

3. Patient P., 23 years old, is in a severely depressed state. According to her husband, she has been sick with pulmonary tuberculosis for 5 years and has been under medical observation. She never worried about her ailment and felt satisfactory. Wishing to go to Kislovodsk together with her husband she applied to the local dispensary for consumptives to make sure it would not harm her. She told them she had had no bacilli in her sputum of late and had begun putting on weight. "You don't have to explain anything to me," the physician said to her; "third stage tuberculosis. No microbes and your gaining a little weight don't mean anything. Tuberculosis is generally incurable. If you have any extra money you can go to the resort."

After these words which were also heard by the patient's husband she took a sharp turn for the worse: she became seriously depressed, was haunted by an obsessive thought of death in the near future, her sleep was disturbed, she vomited neurogenically every morning and lost her appetite. Soon after visiting the dispensary for consumptives a large strand of her hair turned grey. One of the local physicians attempted to administer suggestion under hypnosis because persuasion and explanation on the conscious level failed; the persuasions not only failed to help but depressed the patient still more. It was impossible to induce hypnotic sleep. The patient was in a very dejected state all along under the influence of the

idea that it was "no use living with her 'form' of tuberculosis since death was inevitable." Persuasions of the psychotherapist were also futile.

Despite all our efforts it was impossible to reassure her while she was in the waking state as it was impossible to induce even a weak suggested drowse. The patient left in the same state and soon after returning home committed suicide leaving a note: "A physician should know how to speak to a patient. Tuberculosis is incurable. I must die anyway. The physician proved it." We learned this from the letter of the patient's husband in response to our inquiry as to her condition.

The very sad results of the last case, like those of many other cases, show that physicians do not know they are themselves likely to traumatize their patients. After such a "frightening" verdict the patient develops an asthenic emotion—fear and perplexity—which lowers the tone of the cerebral cortex and develops the trigger point.

The physician must be careful with his words even when the patient's consciousness is clouded as a result of his serious ailment. The physician must not give expression to his ideas of the suspected ailment or of the nature of the signs he observes. A. Forel (1928) thus describes a case from his early medical practice when he unwittingly suggested to the patient that she had a gastric ulcer. He voiced this suspicion during a psychotherapeutic session while palpating her stomach intently and with an earnest face, after the session ordering her to stay in bed and prescribing a dairy diet. As a result of all this the patient was bedridden for several months with a suggested and really non-existent ailment. Forel emphasizes that the unfavourable prognoses which certain physicians mercilessly make to their patients often serve to aggravate the morbid state. K. Bykov (1947) observes that "... new ailments may appear and develop if the psychic state of the patient is ignored, and then, instead of curing the disease the physician becomes the cause of it; this was pointed out yet by Hippocrates, the father of medicine."

It will, nevertheless, be observed that already on the conscious level the words carelessly uttered by a physician may lead to an iatrogenic ailment. It should be borne in mind that not only the *content* of the physician's words but also his *intonation* may impart a definite meaning to a meaningless word which is likely to prove iatrogenic.

Lastly, we shall cite an example showing a patient who under the impression of reading medical books developed a neurosis which might be termed "bibliogenic," i.e., caused by reading literature about diseases.

4. Patient K., 44 years old, complains she "is dying because she is gravely and incurably ill," and refers to her ailment as "stenocardia." She has been sick for 5 months, incapacitated and bedridden all that time, thinking of death in the day-time and afraid of falling asleep at night lest she die "of heart failure." It all started 5 months ago when a district physician diagnosed "stenocardia" and prescribed a strict bed regimen. She availed herself of a textbook of internal diseases, but unable to read the description of stenocardia to the end took to bed in a serious condition. Since then she has summoned the polyclinic physician daily, and in the last month called first aid twice a day to give her "heart injection" which, however, failed to bring her any relief.

Objectively: the patient is in a strained condition, tense, lies in bed propped up by many pillows, speaks a lot about her sensations with tears and sobs because she thinks she is "doomed to die." The members of her family are worried to death by her condition.

A session of suggestion with the patient in a light drowsy state was conducted following an explanatory interview. After the session, the patient got out of bed for the first time in five months, began to speak more calmly and no longer sobbed. Two days later she came to a dispensary by herself for the second session. After the third session of psychotherapy she began to show concern for her neglected household, went to the market and reacted very calmly to the advice of her neighbours "not to overstrain or tire herself out." After the fifth session the patient's peace of mind was entirely restored and she fully rid herself of her obsessive ideas (observation by A. Sosedkina).

Finally, it will be observed that the mentally traumatizing medical factors also include the sometimes insufficiently thought-out lectures and talks on sanitary education conducted especially in sanatoriums for consumptives and in venereological dispensaries. In these talks the patients are mostly acquainted with the clinical pictures of their ailments and their possible complications. In many patients these talks lead to a reactive-depressive condition and aggravate the process of their diseases. The same thing should be said about the pedagogical method which traumatizes the patient's mind when various diseases are discussed in the patient's presence at lectures or in the clinic. A. Galachyan (1954) shows a great variety of iatrogenic factors of this type in his book.

It will be noted in conclusion that the negative, neurotizing influence of a misplaced word may occur in the activity not only of a physician but also of a teacher. The attention of the teachers was called to this fact by Y. Katkov and K. Platonov who pointed out that the peculiar "school neuroses" might develop in this manner on the basis of a psychic trauma inflicted by a teacher.

The teacher must remember that in the pedagogical process certain things and events occur against the background of considerable emotional stress (examination, a quizz with a fixed time limit, call to the blackboard, etc.). These stresses, usually easily coped with by most of the pupils, may present considerable difficulties for children belonging to the weak type of nervous system (anxious-nervous, self-conscious, etc.). For the latter, as Y. Katkov (1938) correctly observes, "*the teacher's word with a negative content is especially important at these moments*" because with a low tone of the cerebral cortex the verbal influences of a negative character "may become easily fixed, according to the mechanism of suggestion, and become the source of a predisposition for further psychic trauma, didaskogenic disturbances and, in individual cases, also didaskogenic ailments," i.e., ailments received from the teacher.

Y. Katkov proposed to call these syndromes *didaskogenic*, i.e., ailments resulting from a suggestion made by the teacher (by analogy with the iatrogenic ailments contracted as a result of a suggestion made by a physician).

The following are several characteristic examples of this type.

1. Ludmila V., 16 years old, 9th-grade pupil of a secondary school, healthy, industrious, assiduous (according to her mother), complained of a "panic fear" which she has for some time experienced before her written tests in the class-room: long before the coming written test she developed a state of inner anxiety with a morbidly tense expectation of "something inevitably terrible." At the same time she noticed that on such days she had no appetite, slept poorly, and was unable to do her homework. During the written tests she was embarrassed, could not concentrate, did not remember what she had written, displayed excessive haste and "everything seemed to be in a fog." Owing to this, she made many unusual and coarse mistakes in spelling and grammar though she was very well versed in those rules of grammar. Ordinarily she never made those mistakes. This gave rise to conflicts with her teacher and as a result she developed a distressing neurotic condition with the idea that it was "no use studying." At the same time she did her written work at home very well, without excitement or mistakes.

The anamnestic interview revealed the psychic trauma: while in the fourth grade, the girl had been transferred from one school to another and the teacher of Russian in the new school received her in an unfriendly manner, always giving her very hard assignments when calling her to the blackboard. The girl did well in the oral quizzes, but during the very first written test she was approached by the teacher who sharply said to her: "You're all right when it comes to gabbing, but let's see what sort of a paper you'll write." The girl immediately grew very much excited. "What if I make a lot of mistakes," she thought and she "felt hot all over." She seemed to be in a fog while writing the test and "she did not remember what she wrote." When the teacher returned her paper with a poor mark (in returning the paper the teacher said: "I knew it all along!") something happened to the girl: "Everything seemed to contract inside, and 'my head was in a fog again.' " From then on the girl feared written tests in the class-room.

This teacher taught in their class only one term, while the consequences of the psychic trauma persisted for a period of years and were removed only by psychotherapy (12 sessions conducted during suggested sleep). In subsequent years, the girl had no relapses, was successfully graduated from the school and is now studying at a medical institute (observation by Y. Katkov).

2. Patient S., 19 years old, complained of extreme difficulties of speech at moments of excitement, especially during the examinations. "I can hardly utter a word, break out in a sweat and as soon as I draw my ticket a thought flashes through my mind: 'I shall stutter.' I am terribly excited even when I know that I am very well prepared for the examination."

Anamnestic interrogation revealed that he had developed these phenomena while in the 6th grade of a secondary school when the teacher of mathematics frequently called him to the blackboard and unexpectedly asked him "confusing" questions thereby completely embarrassing him. Once, while he was excited, she threw at him: "You are a stutterer to boot." The class broke out laughing, while he felt ashamed and was "completely embarrassed." From then on every time the teacher called him to the blackboard she "made fun of his stuttering." Since then, he had had speech

difficulties and stuttered every time he was excited. "When excited, I cannot speak at all." After entering the institute his excitements and stuttering increased still more and this hurt him very much. He observed that, when calm, he had no speech difficulties at all.

Psychotherapy in a suggested drowse was administered. A radical improvement was observed after the ninth session: "The thought of stuttering no longer troubles me." He had no speech trouble at the examinations that soon followed and passed them well (observation by Y. Katkov).

3. Patient F., 20 years old, complained that "she blushed terribly" during examinations and when the teacher called her to the blackboard. "I cannot answer, my face, and sometimes even my hands, are on fire." Difficult questions embarrassed her, but if she knew the answers, she blushed less. Her defect hurt her very much. "I think everybody notices it. Perhaps I'd better give up school and go to work rather than have all this trouble."

It was found out that she had developed the foregoing phenomena when she was in the 7th grade of a secondary school. Once, when called to the blackboard, she was bluntly told by the teacher: "You always blush when you don't know the answer." She had been "very much afraid of the teacher" even before then, but after these words "I not only turned red in the face but felt hot all over and started shaking. . . . I don't remember how I ever go back to my desk." She proved unsuggestible; ten sessions of verbal suggestion conducted by the Bekhterev-Bernheim method resulted in considerable improvement: she regained her interest in the studies and successfully continued them (observation by Y. Katkov).

Lately, K. Platonov has also turned his attention to this group of neuroses (1937, 1946). Here are some of them.

1. We know a case of a flying cadet who loved to fly and wanted to master all the flying skills and who, during the "spin," was suddenly greatly scared which had "never happened before." The analysis of this case showed that the fear resulted from a suggestive influence of a careless note left for him by the instructor (when the latter departed) reading: "I hope we shall soon see each other again, but be careful with the 'spin.' "

2. At the front there was a case when a flying inspector upon leaving the cockpit authoritatively said to a flyer: "You cannot fly, you are ill." And this perfectly healthy flyer really took sick (observation by K. Platonov).

This kind of ideas suggested by a careless word of a teacher embarrasses the cadet and under certain conditions (low tone of the cerebral cortex) may lead to the development of a neurosis. Platonov proposed to call this phenomenon "didactogenia."

We must agree that "didactogenia" manifests itself in school-teaching more frequently than can be supposed since the business of training and education deals with suggestibility, particularly inherent in children and youths.

To preclude the phenomena of iatrogenia, didasko- and didactogenia, it is necessary widely to popularize the basic principles of Pavlov's teachings.

We must also consider the harm inflicted by quackery.

It is usually thought that the ignorance of some sections of the population is responsible for the existence of quackery. We believe that in addition to this there is also another and more essential reason: some part

can be played here by the direct and indirect suggestion semi-consciously administered by a quack in the form of primitive (at times very naive and very inferior) methods of disguised psychotherapy which, it will be observed, sometimes produces clearly negative results.

We shall not cite very many cases in which the quack removes certain functional disorders by primitive treatments with the aid of various "whisperings" or "potions" and at the same time depresses important symptoms of the disease which sometimes requires urgent special pharmacological or surgical interference. Moreover, most of the "potions" are made with alcohol and are taken in large "doses"' and for a long time, being clearly harmful to health. We had to treat many patients for dipsomania which they had developed as a result of protracted treatments with herb "potions" administered by quacks.

The following sad example shows the incongruity and harm of quack methods. It deals with a teacher. To give a full picture of her misfortune we quote her personal narration of her "mental anguish" verbatim.

"I am a teacher. I have many ailments; I have taken treatment several times in Sevastopol, Odessa, and Dniepropetrovsk. Now I have given up all thought of any treatment for the following reason: the trauma I sustained in early childhood has left a definite imprint on my whole life and physicians cannot cure me of it; I have grown tired of telling them about myself at their request and have therefore decided to say no more. I am seriously ill now; I have lost the power of speech. Seeing that no one could do anything for me I thought of suicide: after analysing the coincidence of a number of incongruous circumstances in my life I firmly decided to live no more. But then many people persuaded me to take treatment under hypnosis and I have come here not to cure my nerves, but to rid myself of what has been tormenting me all my life.

"I shall try to tell you about myself briefly: I am 33 years old; as a child I lived with my mother for a short time in the country. When I was 3 or 4 years old I was very sick with rickets. A quack persuaded my parents to do the following: Late on a January night my father took a small black dog, brought a pail of water, put me in a tub, covered my head with a sieve, put the little dog in the sieve and poured the pail of cold water on the dog. I only remember the desperate scratching of the little dog on my head and its incredible howling. I went mad with fear. According to my father I uttered a cry and fainted in the tub. Father took me in a very grave condition to Professor N. Kablukov in Simferopol. I struggled against death for 3 months and survived, but since then I am terrified by dogs, especially by small black ones. I avoid streets and houses where there are dogs; I walk only in the day-time and keep 5 or 6 blocks away from places where I could run into a dog. I couldn't be forced to enter a house or yard where there is a dog even to save my life. I wouldn't venture it in company with anybody either. People make fun of it, but I hide myself from dogs and hide my mad fear of dogs from everybody. Life turned out so that at the age of 12 I left the family and have lived alone ever since. Having always been strong-willed I worked a great deal on myself, but have not accomplished anything in this respect and my 33 years of torture cost me a great deal of effort.

"All my life (both personal and public) has been a complete failure, since I have stubbornly refused to do any social work connected with walking through the city or travelling to the country. Dogs drive me almost to distraction and I nearly faint; as a result of this I lost my power of speech time and again in recent years. My eyesight is growing worse, I have begun having fits of irritation which sometimes change to violent states, but I hide all this from others. I have always loved my work and have given myself completely to my pupils, the school and the children's parents. It's been two years now that I have been unable and unwilling to work. I have given up work a month ago and I do not know what I am going to do. I've told you only part of my troubles, but it is probably the most important part of my unsuccessful life.

"Can you help me? Can you subordinate me to your will, without talking to me, and make me erase this terrible episode from my memory? This episode is responsible for the fact that I had no childhood, no youth, and no life."

There is no doubt that a profound hysterical neurosis arose in this case under the influence of a severe psychic trauma sustained in early childhood. Unfortunately, the patient proved unsuggestible and the prolonged therapy by explanation and persuasion administered by us failed.

Here it will do well to quote Pavlov's words of the end of last century: "... We can judge by the present-day, not-at-all-rare examples, when in some remote wilderness (and not always in the wilderness) a patient ends his life in terrible agony as a result of the ignorant experiment with some treatment or other administered by a quack."[1]

In individual cases, when patients apply to quacks, they no doubt do so precisely because the physicians fail duly to consider the pathogenetic significance which certain factors traumatizing the mind may sometimes acquire and the way the neurotic disorders engendered by them arise and develop, i.e., the purely psychogenic disorders of the higher nervous activity; moreover, the physicians frequently take into consideration only the organic nature of the disease and ignore psychotherapy. By receiving from a physician advice or treatment which does not correspond to his ailment, the patient, who may at the same time be highly suggestible, sometimes aimlessly wanders from one physician to another and finally gets into the hands of a quack. And here as a result of the treatment by the quack he may in certain cases even be relieved by the direct or indirect suggestion. However, great and sometimes irremediable harm is inflicted on the main mass of the patients by the quack "treatment."

The trouble is that in a *number of cases the clinic teaches the physician to regard the nature of the ailment developed psychogenically from an entirely different point of view:* as an organic disease rather than a functional derangement.

We believe that this very essential shortcoming is likely to explain the existence in some countries of so many quacks, people ignorant in medicine, only superficially acquainted with psychotherapeutic literature,

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[1] I. Pavlov, *Unifying Most Important Aspects of Medicine in an Experiment on an Example of Digestion.* Medgiz Publishing House, Ukrainian S.S.R., Russ. ed., 1953, p. 56.

but practising psychotherapy as a profession just the same. There were apparently very many of these "psychotherapists" in Germany if the Berlin Psychoanalytic Society in its rules on psychotherapeutic education and training of physicians had the following paragraph: "*where psychotherapy is practised by non-physicians they ought to seek a physician's advice beforehand or, what is more, consult him in the process of the treatment.*" (Emphasis by the author.)

These ignoramuses in medicine who have become "psychotherapists" may and must be identified with quacks. Thus, we have here a direct struggle between the prestige of the quack and that of the physician. This struggle can terminate only when, in addition to raising the cultural level of the masses, clinical medicine will pay greater attention to psychogenia, when the physician will have better knowledge of the physiology of higher nervous activity, when he will attend not only to the one "sick organ," but to the entire organism as a whole and will learn correctly to consider the true reasons for the development of the functional disorders of the higher nervous activity and of the different varieties of cortico-visceral pathology. Every clinicist should be well versed in the patho-physiological mechanisms underlying them and be able to control these mechanisms.

Under these conditions not a single patient will go to a quack, since psychotherapy built on scientific principles will be administered in the clinic.

CHAPTER XVIII

NEUROSES AND THE FACTORS FOSTERING THEIR DEVELOPMENT

> ... The world of pathological phenomena is an endless series of all sorts of *special* combinations of physiological phenomena, which do not occur in normal life. Undoubtedly, this is, as it were, a series of physiological experiments conducted by nature and life....
>
> *I. Pavlov*

Man's higher nervous activity is formed, as we know, all through his life, sometimes under very difficult and complicated conditions of a social and physical environment. According to Pavlov, the "most important, strongest and constant impression" from the study of higher nervous activity is the *extraordinary plasticity* of this activity, *its enormous potentialities:* nothing remains immovable, everything can be attained and can change for the best, provided the corresponding conditions are on hand."[1] (Emphasis by the author.)

But in the process of man's higher nervous activity conditions may arise which are beyond the strength of his nervous system, since, as Pavlov says, "by strengthening the morbific methods" it is possible, in the long run, to "overcome and break down even a well-balanced, strong type" of nervous system because "every force has its limit."

For this reason a more or less stable and prolonged functional disorder of the higher nervous activity frequently arises, and the nature of this disorder is determined primarily by the initial state of the cortical physiological mechanisms in the sphere of whose activity it has arisen. This conditions the considerable variety and complexity of the pictures of neurotic ailments.

According to Pavlov's physiological teachings, the neuroses are chronic (continuing for weeks, months, and even years) functional disorders of higher nervous activity.

It will be emphasized that before Pavlov's studies there was no scientifically substantiated idea of neuroses, that it was elaborated only by

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 364.

Pavlov's teachings which destroyed the old localized anatomic conceptions of neuroses as ailments with presumably "still undiscovered" micromorphological changes in the central nervous system, as it was believed by Strümpell, Raymond, et al.

On the basis of Pavlov's teachings we know today that under the influence of conditioned or unconditioned stimulations too strong for the given nervous system and acting on the cerebral cortex from the internal or external environment a change in the intensity, as well as in the normal relations between the basic cortical processes, a derangement in the relations between the cortex and the closest subcortex, and in human neuroses in the relations between the two signal systems can easily arise. A disorder of higher nervous activity may arise as a result of an overstrain of one of the basic cortical processes (stimulatory or inhibitory) or, lastly, of an overstrain of their mobility ("clashing").

In studying the human neuroses a systematic accumulation of corresponding clinical facts and a thoroughgoing investigation of the reasons for the development of the neurosis and the conditions under which it develops in each individual case are very helpful. We have been persuaded that the efficacy of the psychotherapy of neuroses, which helps correctly to understand the nature of the syndromes (organic or functional, i.e., neurotic), sometimes difficult to diagnose, and the pathophysiological mechanisms underlying them, is of great importance.

Various factors, which in the form of keen or protracted distressing experiences traumatize the mind, play a decisive part in the development of a psychogenic neurosis. In this case, the development of the neurotic ailment depends, on the one hand, on the type peculiarities (for example, congenital or acquired weakness of nervous system) and, on the other hand, on the social significance of which the factor traumatizing the mind is to the given person. The degree of the psychic trauma depends on whether this factor acted once, many times or chronically, and also on the extent and nature of the emotional tension existing at the moment of the psychic trauma, etc. Of essential importance in this respect are the events which lead to a reorganization or even a sudden break-up of the fixed dynamic patterns, which results in a deep derangement of the cortical dynamics and, by force of this, sometimes in an overwhelming influence on it by the closest subcortex. This usually finds expression in temporary anxiety, timidity, lack of self-confidence, a distressing feeling of weakness, tormenting inner discord, etc., which form the picture of a *neurotic state.*

All this usually helps further to lower the tone of the cerebral cortex and to derange the relations between the cerebral cortex and the closest subcortex. If these derangements become stable and a person cannot rid himself of them by himself, the result is a *neurotic ailment or neurosis.* In this case the higher nervous activity loses, in some measure or other, its typical normal equilibrium, mobility, ability to overcome difficulties and retain inner unity, and temporarily becomes more or less inferior. It should be remembered that the development of a neurosis is connected with a low tone of the cerebral cortex and, consequently, with a rise in suggestibility and autosuggestibility.

It is well known that for successful treatments the physician must guide himself by a definite classification of morbid states. However, since the

problem of neuroses was incorrectly solved, until recently there has been no corresponding aetiopathogenetic classification of these states. This is testified to, for example, by the fact that the 1934 Congress of the Ukrainian Neuropathologists and Psychiatrists was unable to advance the solution of this problem and the papers read at the congress did not aid in elucidating it.

As stated before, only Pavlov's teachings on human neuroses for the first time scientifically, physiologically, substantiated and elucidated their functional nature, their origin and dynamics. It was in this manner that the conditions under which functional disorders and pathophysiological mechanisms of various neurotic states arise were disclosed and conditions for their pathogenetic classification were set up.

The neuroses are directly connected with the type of nervous activity of man. Thus, neurasthenia is a morbid form of the weak general and intermediate human type, while hysteria is a manifestation of the weak general type combined with the artistic type and a pathological prevalence of the first signal system and the subcortex. Psychasthenia arises in the weak general type combined with the intellectual type and a pathological predominance of the second signal system. In the hysterical patient, general weakness therefore shows itself particularly in the activity of the second signal system which is the highest regulator of human behaviour. For this reason the patient manifests a chaotic activity of the first signal system and of the emotions. In cases of psychasthenia it is, on the contrary, the first signal system and the emotions that are weak.

An obsessional neurosis is based on a "trigger point" retained for a long time because of the zone of inhibition which isolates it and is formed according to the mechanism of negative induction. It is therefore characterized by a pathological inertness of the cortical processes in the region of this "trigger point."

Mention must also be made of the neurotic ailments based on a firmly fixed pathological conditioned reflex, the conditions of whose development (according to the mechanism of pathological conditioned bonds) shall be considered below.

It will be remembered that a debilitating somatic ailment or repeated distressing and prolonged psychic trauma can also weaken a strong and well-balanced type of nervous system and result in a neurotic ailment. Failure to consider this circumstance may easily lead the physician to an erroneous interpretation of the nature of the neurotic ailment. This is equally true of the diagnosis of hysteria and psychasthenia. In some cases a reactive hysterical syndrome, if it lasts long—months or even years—may mislead the physician. The physician often erroneously believes such patient to be a "constitutionally hysterical person," an "hysterical psychopath." In these cases the physician usually descries a "certain aim," a "tendency to simulations" and a "sexual" aetiology with presumably irreversible pathological manifestations "requiring prolonged over-all treatment." Because of this wrong medical approach to these patients the physicians not infrequently complicate and aggravate their condition and traumatize them by the very diagnosis of "hysteria."

Practice shows that in these cases, with a corresponding analysis of the development of the pathological syndrome, psychotherapy, especially administered during suggested sleep, may in a rather short period of

time produce a stable positive effect, to the point of radically removing not only the individual symptoms, but also the entire syndrome, and completely normalize the cortico-subcortical relations. Under the circumstances the patient may display traits of a rather strong type of nervous system. Our observations show that such reactive neurotic states may develop in premorbidly (practically and clinically) healthy people without hereditary predispositions.

We always diagnose these ailments as prolonged hysterical reactions or reactive hysterical neuroses. Psychotherapy administered on the conscious level or during suggested sleep with subsequent sessions of prolonged suggested rest usually produces in these cases a stable positive effect.

It will be noted that the aetiological factors underlying the reactive hysterical neurosis become entirely clear in the light of Pavlov's teachings. Extremely varied influences traumatizing the mind may be of importance here; according to Pavlov, these include "not only the horrors of war, but also many other dangers to life (fire, railway accidents, etc.), a long series of life's shocks, such as loss of the dear ones, unrequited love and other life's disappointments, loss of property, destruction of convictions and beliefs, etc., and generally life's hardships: unhappy marriage, struggle against poverty, insult to one's dignity, etc.).[1] The results of our observations also show a great variety of factors traumatizing the mind and capable of developing a hysterical neurosis.

A hysterical syndrome, even more or less prolonged, may frequently prove transitory and be of a temporary and never recurring nature. This type of "hysteriacs" require precisely the psychotherapy which apparently produces, as stated before, a stable cure, especially in persons of the strong artistic type.

The diagnosis of "psychasthenia" can in itself also keenly traumatize the patient. Frequently such patients are not really psychasthenics in the general sense of the word, in the sense of their psychasthenic character or psychasthenic constitution. Profound derangements denoting an extremely weak general type of nervous system with a pathological prevalence of the functions of the second signal system over those of the first, which is typical of psychasthenia, are characteristic of the psychasthenic constitution.

The clinical picture of an obsessive neurosis (according to Pavlovian terminology) not infrequently includes the symptoms usually specific of constitutional psychasthenia which may be the reason for the erroneous diagnosis of the given ailment as psychasthenia. For this reason we referred this ailment in our practice to a special group of "psychasthenoid neuroses" in which the symptoms of obsession can be removed by verbal influence under hypnosis.

In his time V. Bekhterev (1890, 1892, 1911, 1915, and 1928) pointed out the efficacy of suggestion and hypnosis in obsessive states; he said (1911) that "obsessive ideas and various types of pathological fear were some of the other psychic disorders that could be cured by hypnotic suggestions."

In the development of neuroses psychic factors play a decisive part in some cases and somatic factors in others. Pavlov's main attention was attracted by the former.

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 416.

Psychogenic neuroses are conditioned by overstrain of the basic cortical processes. The treatment of these neuroses must be built on the use of the means which act directly on the cerebral cortex, mainly hypnosuggestive therapy (and psychotherapy in the wide sense of the word), bromine-caffeine therapy and hypnotherapy. The positive results yielded by the treatment of psychogenic neuroses are proof of their functional nature. Tonic pharmaco- and physiotherapy, labour therapy, medical gymnastics, etc., are usually employed as auxiliary means.

The *somatogenically conditioned* neurotic syndromes (the so-called somatogenic neuroses) are due to asthenization of the cerebral cortex caused by a somatic ailment, i.e., an ailment based on some organic derangement provoked by a physical trauma, infection, endocrinopathy, endocrine-vegetative reorganizations, etc. Thus, somatogenic neuroses differ from psychogenic neuroses in their aetiology and pathogenesis, the cerebral cortex becoming asthenized in them for the second time. In these cases the pathogenetic method of treatment is therefore the method aimed at removing the basic somatic ailment (i.e., pharmaco-, physiotherapy, etc.), while psychotherapy must be an auxiliary symptomatic means of treating these diseases.

This division of neuroses into psychogenic and somatogenic forms is of great practical importance primarily because it predetermines the nature of the therapy prescribed. In observing this division we have convinced ourselves of its expediency in practice (1929).

A. Ivanov-Smolensky (1952) distinguishes additionally ailments which constitute the third large group of neuroses and have a *mixed* aetiology of both psychic and somatic nature. This presupposes simultaneous psychogenia and somatogenia and a possible neurotic reaction of the patient to a somatic ailment.

Lastly, we should consider the problem of the so-called neurosis of an organ and vegetoneurosis, the essence of which has long been vague. In this problem we now proceed from Pavlov's teachings. The cerebral cortex is an organ which regulates the functions of all organs and systems and determines their functional state. The nature of such neuroses is therefore based on a functional disorder of the higher nervous activity. Hence, the "neurosis" of an organ or "vegetoneurosis" is a functional pathology conditioned by a disorder of the regulatory function of the cerebral cortex which ordinarily ensures the normal activity of the given organ and of the entire vegetative system.

It is therefore not the "sick" organ or vegetative system that must be treated but the deranged regulatory activity of the cerebral cortex.

This conception clarifies the diagnostics of these ailments and the methods of their treatment. We believe that psychotherapy must be the basic method of treating the "neurosis of an organ" or "vegetoneurosis."

SIGNIFICANCE OF THE TYPE OF NERVOUS SYSTEM

According to Pavlov's teachings, the type of nervous system is determined by the properties of the basic cortical processes: strength, equilibrium and mobility. In addition to the general types of higher nervous activity inherent in man and the higher animals, Pavlov distinguished specific

types inherent only in man, namely, intellectual, artistic and intermediate. The specific pathological features of man's higher nervous activity are determined by the relations between the two signal systems of reality in this activity. Whereas the intermediate type, as Pavlov says, "combines the work of both systems in due measure," the second signal system, through which the entire higher nervous activity is essentially effected, prevails in the intellectual type. In the artistic type it is, on the contrary, the first signal system that shows predominance. In this type, it is the conditioned stimuli of the first signal system that play the leading part, i.e., it is the objects and phenomena of the external world whose action in large measure depends on the emotional attitude of the given person. Owing to this, it is the closest subcortex—the emotions—rather than the purely mental (intellectual) activity that manifests itself more in representatives of the artistic type of higher nervous activity.

In order that the activity of the organism be successfully balanced against the rapidly changing conditions of the external environment it is necessary that both basic cortical processes possess sufficient force and sufficient mobility and at the same time be sufficiently balanced against one another.

Pavlov devoted a lot of attention to the problem of the connections between the neurosis and the type of nervous system. On the basis of the experimental data obtained by his associates, he concluded that the "probability of a nervous ailment is clearly connected with the type of nervous system."[1] However, the problem of distinguishing the typological peculiarities of the human nervous system presents considerable difficulties. It will be remembered, first of all, that the variety of types of nervous system is not confined to the four basic types, that in life there may be up to 24 different variations of these, that the finest variations in the type of nervous system are observed particularly in the weak type and that they have not been adequately studied or systematized as yet. Nor should another circumstance be overlooked. S. Virzhikovsky, and F. Maiorov (1933) showed in experiments on puppies that the representatives of the strong type brought up under "hothouse" conditions may display traits of the weak type. At the same time, it is well known that by training a weak type, too, can be made vitally stable, in other words, its natural attributes can be disguised.

The foregoing considerations make it clear why the study of "true types of nervous activity" presents *"almost insurmountable difficulties."* As Pavlov says, the "behaviour of man or animal is conditioned not only by the inborn properties of the nervous system, but also by the influences which have always acted on the organism during its individual existence."[2] Determination of the natural type of nervous system therefore requires a consideration of all the influences to which the given organism has been subject from the day of its birth. Pavlov believes that in order to overcome all these difficulties it is necessary to multiply and vary the forms of our diagnostic tests which must be aimed at revealing the special changes in the nervous system conditioned by certain influences of individual existence

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 458.

[2] *Ibid.*

because it is precisely in this manner that the disguised natural traits and the newly-acquired or instilled peculiarities of the types of nervous system can be disclosed. Determination of the typological peculiarities of a patient in our investigations is only of a tentative nature, which is primarily due to the aforesaid difficulties emphasized by Pavlov himself and his pupils, A. Ivanov-Smolensky (1953) in particular.

ACUTE AFFECTIVE STATES

Of the conditions under which a neurotic ailment develops, the nature of the emotional state prevailing at the time the neurosis arose is of particularly great importance. The data of Pavlov's school on the relations between the cortex and the closest subcortex throws light on the enormous role played by the emotions not only under normal conditions of life, but also, and especially, in the development of neurotic ailments. Excessively great emotional stress, occurring once, or especially repeatedly, temporary or prolonged, may, under certain conditions, cause a considerable and stable derangement of the higher nervous activity. The problem of psychogenia of various disorders of the functions of the organism must therefore be built on an analysis of the condition of the patient's emotional sphere and the affective states experienced by him.

A number of models of human emotiogenic disorders were obtained by M. Petrova (1946) on dogs. She established that when the nervous system was systematically subjected to serious nervous trauma for a long time, say, a number of years, it was always possible, in addition to various pathological states of the nervous system, to observe diseases of the kidneys, liver and joints, inflammation of the middle ear, motor disorders on the part of the gastrointestinal tract, various specific ailments of the skin and different new growths on the skin and in the internal organs. The onset of these ailments was infallibly preceded by derangements of the nervous activity. According to this investigator, various psychic trauma "are apparently most important in predisposing the organism to all sorts of ailments, including cancer, and to premature aging of the organism. Great importance must therefore be attached to the question of psychic and somatic connections." Numerous clinical observations of neurogenic disorders of the functions of the internal organs and systems may serve as proof of this.

An abnormal development or temporary strain of one of our emotions, says Pavlov, may "send to corresponding cortical cells incessant or excessive stimulation at a definite period of time or continuously, and thus finally produce in them a pathological inertness, a persistent idea and sensation even when the real cause has ceased to act. *The same may also have been produced by some strong and shocking impressions.*[1] (Emphasis by the author.)

The investigations conducted by V. Bekhterev and V. Myasishchev (1926), and N. Krasnogorsky (1939) testify to the great importance of the

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 410.

emotions in the development of any disorders of the higher nervous activity. Thus, Krasnogorsky observes that the reflexes formed during keen fright remain inextinguished throughout life. He believes that during strong emotional subcortical excitations, the cerebral cortex as a whole is inhibited with the exception of the innervations which are directly stimulated in the given situation. The following examples from our practice illustrate the foregoing.

1. Patient K., 63 years old, complains that funeral processions and all that is connected with funerals (requiems, funeral music, the smell of frankincense, etc.) have always provoked an "indescribable fear" in her with a sharply pronounced vegetative component and sometimes fainting spells. This fear determines all of her behaviour; she was forced to change her occupation, tries to live as far as possible from the cemetery (which she has never seen), if a funeral march is played at a concert she leaves the concert in fear, etc.

In studying the conditions under which this pathological reaction was formed, we found that when she was five years old, she had once been taken by her nurse to a funeral and as she became cranky during the requiem the nurse threatened her with the corpse by saying: "Here she'll get up and take you to the grave with her." "I was terror-stricken," the patient told us, "I trembled, put my arms around the nurse, hid my face in her lap and stood there trembling to the very end of the requiem." While recalling this, the patient showed a vivid emotional reaction with a pronounced vegetative component (flushed face, perspiration on her forehead and acceleration of the pulse), trembling all over and "smelling the frankincense that saturated the air during the requiem."

In this case a single, but extraordinarily strong emotional excitation developing under the influence of a verbal stimulus gave rise to the pathological conditioned reflex reaction to the given situation in the form of fear and fixed it for many years.

This phobia of many years standing was fully removed by two sessions of suggestion in a suggested drowsy state. Even after the first session (on her way home), the patient passed a funeral procession undisturbed. Moving to a new home soon, she agreed to live near a cemetery (we learned about this from her husband's letter). The patient was under observation for 4 years and the phobia never recurred.

2. Patient P., 45 years old, complains of a fear of closed spaces and of crowds. Under certain conditions she becomes excited, embarrassed and desperate, develops palpitation and fear often to the point of screaming. If she is jostled by a crowd and does not see an exit near by, for example, in a tram-car, or at a meeting, i.e., in a closed space, far from an exit, she becomes uncommonly exited and with a desperate cry and terror written on her face implores the people to let her get to the exit as quickly as possible, makes great efforts to get out, surprising the people around her. She calms down as soon as she reaches the exit and sees that the door is open. She is relatively composed at the theatre, concerts, or scientific sessions but when she enters or comes out together with a crowd of people she immediately begins to experience "unspeakable terror." If she stands near an open window in a tram-car, she feels no fear because "she can get out through the window," but if she finds herself in a closed

room with a big crowd of people, she is immediately overcome with intense fear.

Various drugs, and physical methods of treatment were used, but they produced no effect. Physicians advised her "to take herself in hand" or "practise autosuggestion," but the attempts made by her in this direction failed. According to the patient, she had these fears "all through her life" and did not know how they had ever come about. "I do not know how and why they came about."

However, by corresponding questions concerning her experiences in the distant past, it was revealed that at the age of 17 the patient came to a cathedral for a solemn mass making her way through a dense crowd of soldiers with difficulty. Upon reaching the middle of the cathedral she found herself pressed in on all sides by the soldiers, felt there was no way out and was unable to move either ahead or back. She was terrified, grew desperate and perplexed. "Since the exit was very far, I was terror-stricken and screamed: 'I feel faint,' " she told us. Her friends helped her out of the crowd and took her out of the cathedral. As she approached the open door she began to feel better and grew perfectly calm as she came out into the street.

While telling us this, the patient was very much excited, as if she were reliving all that had happened to her about 30 years previously and she "clearly smelled the odour of the soldiers' coats and of the crowd." Thus here, too, we have a revival of the traces of strong emotional stress.

The patient was given an explanatory interview in which she was told that this condition would end. This reassured her considerably, whereas before then she had been afraid of losing her mind. We let her go, telling her to come back in case of a relapse. The patient never came back and we had no more information about her.

3. Patient S., 36 years old, complains of extreme irritability, pressure in the region of the heart and stomach, disturbed sleep and a picture of being attacked by a bandit always flashing through her mind the moment she begins to doze off; she sees a "forest and a person in a soldier's coat, sawed-off gun in hand." At such moments, the patient screams, wakes up and falls asleep only towards morning. She is haunted by the same picture when it grows dark, while she is awake. In connection with this, she has developed a fear of tall men in military coats. "The moment I see anyone like that everything begins to burn inside of me." The patient is incapacitated, feels weak and is gradually losing her appetite. General strengthening therapy (in the polyclinic) produced no result. Before her ailment she was very efficient, gay and vivacious.

Five sessions of suggestive therapy during suggested sleep entirely removed the pathological syndrome and restored normal cortical dynamics. She was observed for a period of two years, during which time she showed no relapses. Efficiency, vivacity and even temper were fully restored (observation by Y. Katkov).

Thus we see that in the foregoing observations acute emotional stress was a very essential factor in the onset and development of the neurosis, which confirms the correctness of Déjèrine's basic postulate (1912): "Without an emotion there is no psychoneurosis." In most cases, these emotional factors are usually easily recalled by the patients themselves.

A good deal of attention was devoted to the problem of the pathogenetic significance of keen negative emotions. We know the classic works of our Russian authors, for example, V. Manassein (1876) and A. Yarotsky (1914), who had accumulated a lot of empirical material on this problem, as well as foreign investigators, for instance, Charles Férè (1892) and Déjèrine (1912). The physiological mechanisms underlying the emergence of emotions were also studied by V. Bekhterev and later by Pavlov's school, especially by M. Petrova (1946). From Petrova's studies it follows that by affecting the state of the cortical tone a sustained negative emotional stress may lead to considerable derangements of the organism's vegetative functions and its resistance to various harmful influences.

Mention should also be made of P. Anokhin's (1949) studies devoted to the problem of emotions. In addition, Anokhin recently advanced a conception of cortical inhibition, and on its basis attempted to make a physiological analysis of the genesis of neurotic states (1955). These studies attach great importance to negative emotions, which under certain conditions lead to neurotic states.

PHASIC STATES

The transitional states (from wakefulness to sleep and back) designated in Pavlov's teachings as hypnotic phases (righting, paradoxical and ultraparadoxical) play, as we already know, an important part in the physiological mechanism of the suggestive action of words. For this reason if a neurotic syndrome develops according to the mechanism of verbal suggestion it also most easily arises precisely under these conditions.

A phasic state usually develops in connection with a low tone of the cerebral cortex produced, for example, by an asthenic emotion (fright, fear, anxiety, perplexity, etc.), i.e., during transitory or prolonged and tense dynamic processes in the subcortex which provoke a pronounced negative induction in the cortex and thus lower the tone of the latter. The studies conducted in A. Ivanov-Smolensky's laboratory have shown that these phasic states may also arise in infectious or toxic diseases under conditions of exhaustion of the cortical cells during considerable functional endocrine-vegetative reorganizations. This is also indicated in the data furnished by D. Fursikov (1922), M. Rozental (1922), and I. Prorokov (1941). Lastly, the low tone of the cerebral cortex may also be conditioned not only by the congenital weakness of the nervous system (weak type), but also by acquired properties (weakened type). As Pavlov puts it, "we can easily picture to ourselves nervous systems which, either since the day of their birth or under the influence of life's hardships, have had a small reserve of excitable substance in the cortical cells and which therefore easily become inhibited, enter various phases of inhibition or are even constantly in some one of these phases."[1]

A picture very vividly illustrating the role of a phasic state in the genesis of a neurosis, which arose under the influence of verbal stimulations trau-

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 286.

matizing the mind during the transition from sleep to wakefulness or, contrariwise, from wakefulness to sleep, is not infrequently observed.

The efficacy of psychotherapy also shows itself very clearly under the same conditions (K. Platonov, 1930, 1935, 1940).

In phasic states the neurotic syndromes most frequently develop according to simple physiological mechanisms of suggestion and autosuggestion, but often show a complex clinical picture and persist for a long time, which not infrequently renders diagnosis very difficult.

The following typical observations testify to the significance of low cortical tone and the pathogenetic role of transitional states in the formation of obsessional neuroses.

1. Patient Z., 24 years old, complained in May 1930, of an obsessive fear of going insane, loss of self-confidence, complete incapacity and a painful "consciousness of being unfit for work and life." The patient's condition was becoming progressively worse despite his striving to recover. He had been sick for a period of one year.

Questioning of the patient revealed that he had seen for the third time a film in which he had taken very little interest, and since it was during the last late showing he drowsed through the greater part of it. But during the most striking scene showing the psychic disorder of the main character, he was pushed and brought out of the drowsy state. He opened his eyes, looked at the screen, and heard his neighbour quietly saying: "You, too, will go mad like that." He was terror-stricken and in his perplexity was hardly able to see the film to the end.

That night he did not sleep. His neighbour's words "You, too, will go mad like that" hammered at his brain and he saw the picture of insanity before his eyes. From that day on the patient had an obsessive fear of losing his mind, which was later aggravated by the diagnosis of "psychasthenia" made by physicians. He could no longer play in the orchestra because the thought of insanity never left him, his sleep was disturbed by pictures of insanity and he therefore feared nights. He grew nervous and timid "as he had never been before." He was becoming inefficient, the change of his health for the worse and the uselessness of the treatments drove him to desperation. "Suicide was the only way out," he said.

After ascertaining the cause, an explanatory and reassuring interview was conducted; the patient was not reassured, however, and came back the next day in the same state. He proved very suggestible and five sessions of suggestion, the patient in a state of suggested sleep, were conducted. The formula of suggestion included all that had been said the day before with an addition of "indifference to the past experiences" and "forgetfulness of these experiences." Each session was followed by a one-hour suggested rest. The effect was striking. "When I came out into the street after the first session," said the patient, "I had a pleasant feeling. I started looking at the passers-by and asking myself: 'Well, what am I really afraid of? Here are all these people walking along without any fear and yet I am afraid of something'. I was finally able to take myself in hand and came back home in a good mood. True, I was still afraid of nightfall, but not like before." After the second session he felt still better and after the fourth and fifth sessions he was perfectly well. "I am infinitely happy," the patient said.

He was under observation for 11 years and had no relapses; after recovery he played for 10 years in the orchestra of the Radio Committee. Diagnosis: compulsive-obsessive neurosis (observation by F. Tseikinskaya).

There can be no doubt that in this case we had a phenomenon quite similar to a hypnotic and post-hypnotic suggestion since at the moment the two stimuli—visual and auditory—were perceived, the man was in a state of incomplete sleep inhibition, i.e., with a low tone of the cerebral cortex conditioned by the transition from sleep to wakefulness. In this case, it could have been, apparently, the paradoxical phase during which the verbal stimulus (the words "You, too, will go mad like that," spoken softly besides), and the visual stimulus (both weak) created a locally restricted and uncorrespondingly strong focus of excitation with a strongly pronounced zone of intense negative induction. It is according to this mechanism that a "trigger point," a focus of pathologically inert excitation, was formed.

The reverse process, the removal of the trigger point, was effected by therapeutic suggestion: "You have already forgotten your experience, it does not affect you in any way and you are again quite well." The therapeutic effect was also produced under conditions of low cortical tone underlying the state of suggested sleep. As we see, the pathological syndrome was removed as fast as it had been formed and under the same physiological conditions, i.e., in the transitional (phasic) state of the cerebral cortex. Under these conditions a "trigger point" appears particularly easily, which is demonstrated by the following two observations.

2. Patient K., 23 years old, was brought to the dispensary by her relatives in an anxiously excited state complaining of fear of meeting men, fear of being looked at by men, fear of knives, axes, and doormats. In addition, she was afraid to go out of the house alone and to sleep in her own bed; at night she did not sleep at all, while during the day she could only drowse sitting up in a chair and awakened the moment the drowse became a little deeper. She had lost a lot of weight.

Her ailment was acute, had lasted about 2 months and had begun in connection with an attack on her home. She was awakened at night by a member of her family who whispered to her: "Wake up, we are being attacked by bandits wearing masks." The patient was frightened and was temporarily in a stupor. The attack was quickly foiled and the patient did not see the attackers but was under the strong influence of the words that had awakened her.

She told us she was thunderstruck and horrified by the words she had heard, everything became confused and she only heard the words "bandits wearing masks." The fear of knives and axes she explained by the fact that in case of a repeated attack, which she in her tense fear expected, these objects might be used by the bandits. She was afraid of doormats because in defending herself against the attackers she "might trip and fall." She was afraid to sleep in her bed and preferred to sleep sitting up so that she might the faster and easier "seek safety in flight."

After four sessions of suggestions during suggested sleep with subsequent one-hour sessions of suggested rest, the entire pathological syndrome was removed. Positive catamnesis for 12 years; no relapses.

The following is another case in which an analogous "trigger point" arose in the form of a serious neurotic condition.

3. Patient L., 21 years old, with healthy heredity, was brought by her mother in November 1930 with complaints of extraordinary anxiety and depression, extreme emaciation, insomnia and the fact that for a period of a month she had been haunted by a fear of developing various diseases and of possible near death. Because of this, she made the rounds of polyclinics and laboratories, stubbornly seeking confirmation of her imaginary diseases by laboratory analyses.

According to her mother, she had lately "become entirely abnormal"; she did not eat, did not sleep nights, cried and only talked about her ailments. The polyclinic referred her to a psychiatric hospital because of the development of the so-called "ideo-obsessional psychosis," whereas before this ailment she had always been healthy, cheerful, vivacious and efficient.

It turned out that a month previously she had been ill with typhoid fever. As her senses were clouded, when her temperature rose to 40.2° C., a number of physicians gathered at her bedside for consultation. The physicians voiced in undertones their various apprehensions concerning the possible complications: "The typhoid itself is not dangerous, but there may be complications," "we probably have meningitis or uraemic phenomena here," "we must consult a neuropathologist"; they also mentioned encephalitis, paralysis and phlegmona. As it was later ascertained these words had reached the patient's consciousness.

"I was vaguely aware," the patient told us, "that there were physicians near me, and the names of the complications were hammered into my head." During her convalescence the sentences she had heard were revived and the patient began to discover in herself the signs of all these ailments. "I was terror-stricken," she said. Thus she gradually developed obsessive ideas which grew stronger after a woman in her ward fell down while trying to get on her feet. Recalling what the physician had said about a possibility of paralysis she decided: "This is the way it will happen to me."

Four sessions of psychotherapy during suggested sleep with subsequent half-hour sessions of suggested rest removed the entire syndrome. Diagnosis: "Iatrogenic obsessive-compulsive neurosis, nosophobia." Was under observation for 6 years and had no relapses.

In this case, the syndrome developed on the basis of the physiological mechanism of suggestion, which emerged under conditions of incomplete inhibition of the cortex weakened under the influence of the typhoid infection with, apparently, a developed paradoxical phase. This assumption is warranted by the studies of the Pavlovian school, particularly the aforementioned data of A. Ivanov-Smolensky's laboratory (1952), about the influences of such factors as infection, intoxication and various disorders of the functions of the endocrine-vegetative system on the dynamics of the cerebral cortex. Under these conditions, a prevalence of the inhibitory process over the excitatory process and a transitional (phasic) state of the cortical cells were observed. We can express this assumption on the basis of many other clinical observations of neurotic ailments which developed according to the physiological mechanism of suggestion (mainly in the form of an obsessive-compulsive neurosis) under conditions of a lowered tone of the cerebral cortex produced by various factors.

4. Patient K., 33 years old, came with complaints of a persistent obsessive fear of death that had haunted him for a period of several months. The words "Think he's dead" uttered while he was lying in a state of alcoholic intoxication provoked it. These words scared him terribly and he sobered up. The obsessive fear of death had persisted ever since.

This pathological symptom was removed by two sessions of suggestion during a suggested drowse with subsequent suggested rest.

Thus we see that in all the foregoing cases (there are many such in clinical psychotherapeutic practice) the disease develops when the tone of the cerebral cortex is lowered and in phasic states. Similar observations were described by Y. Popov (1940) who also emphasized the role of phasic states in the development of compulsive symptoms.

PATHOLOGICAL CONDITIONED REFLEX BONDS

Clinical observations show that the conditioned stimuli which may form a temporary pathological bond are extraordinarily diverse. By virtue of the universality of the phenomenon of temporary bonds, a pathological conditioned reflex may form under certain conditions in response to every external stimulus and manifest itself only in the presence of the specific stimulus. The possibility of obtaining a pathological conditioned reflex experimentally was first established by V. Krylov (1925).

In the overwhelming majority of cases the pathological conditioned reflex bonds are removed by psychotherapy quite rapidly and irrespective of the degree of their fixation, which proves their temporary nature.

We chanced to observe conditioned reflex headaches which the patient got every time she came to the city where she had first experienced a distressing psychic trauma which had given her a racking headache. In our dispensary we observed a patient who had "hystero-epileptiform" attacks each time she saw blonde women because she had been traumatized for a long time by an affair her husband had had with a blonde. Under this heading we must also include the frequently occurring phobias (fear of open spaces, closed spaces, sharp objects, and many others), which develop and become consolidated according to the mechanism of temporary bonds. Psychotherapy administered on the conscious level or during suggested sleep produces, in most cases, a positive effect.

Cases of pathological conditioned bonds are not rare. Below are a few more typical examples.

1. Patient S., 24 years old, came to the dispensary complaining of attacks of nausea and vomiting he had had for a period of a year, these attacks beginning each time he rode a tram-car or bus and making it impossible for him to use these means of conveyance. Moreover, the very sight of a tram-car or bus, the noise they made in motion, and lately even the thought of them alone provoked vomiting. For this reason he had to go to the country where he lived for two months; but there too he had the same vomitive reactions at the thought of a bus or tram-car. At the same time he grew very inefficient, lost his appetite and a lot of weight.

An anamnestic interview revealed that his ailment had begun a year previously; in the railway carriage in which he was coming from the

Crimea there was a passenger who had frequent attacks of vomiting lasting several hours on end, disturbing the patient's sleep and affecting him distressingly. Since then, he had had the aforesaid pathological vegetative "vomitive" conditioned reflex at the sight of carriages, including buses and tram-cars.

Explanatory psychotherapy produced no effect. Four sessions of suggestion with the patient in a drowsy state resulted in improvement observed from the very first session. Forgetfulness of the experience and a calm indifferent attitude to any forms of transport were suggested to the patient. After the course of psychotherapy he told us he was "quite well," calmly travelled by bus and tram experiencing none of the former unpleasant sensations, regained his appetite and efficiency and put on some weight. He was demonstrated at lectures to students. Was observed by us for a period of a year and showed no relapses (observations by R. Shlifer).

2. Patient N., 25 years old, complained that for some time his hands sweated profusely, especially when he had to shake hands with people he did not know very well; it manifested itself particularly every time he saw a certain young woman.

These phenomena had begun 2 months previously the day this woman, while shaking hands with him, observed his palm was moist. This affected him so much that every time he had met her since then both his palms immediately perspired profusely. Subsequently, this also occurred when he met other people. Two sessions of psychotherapy conducted with the patient in a drowsy state removed this pathological reflex.

This peculiar state manifesting itself in a "compulsive perspiration of the hands" was described by V. Bekhterev (1906).

3. Patient G., 28 years old, was poisoned one night in January 1940 by charcoal fumes and stayed in a hospital for 3 days. Since then the entire syndrome of poisoning by charcoal fumes has appeared at 4 o'clock every morning (at the same hour she was actually poisoned): She wakes up with a headache and nausea which is followed by vomiting. Then she feels good again and works very well all day long. The attacks do not cease even when she sleeps in another apartment, at her sister's. She did not have them only for three weeks while her brother was visiting with her. Nor did she have any attacks in summer when the stove was not burning, but as soon as it was lighted the attacks recurred even when the chimney was open all through the night. The attacks appeared even in cases when the stove was purposely put out. Pharmacological treatments were useless.

Psychotherapy was instituted. The patient proved highly suggestible; three sessions of hypnosuggestive therapy with the suggestion: "You are well, you have no more night headaches and you sleep undisturbed all through the night," removed the entire syndrome. The patient was under observation for six months, and her night headaches never recurred.

The foregoing patient had developed a pathological conditioned reflex to the factor of time formed on the basis of poisoning by charcoal fumes. We also observed a pathological conditioned reflex to the factor of time in the form of attacks of pain in the abdominal cavity with a dysfunction of the intestines. We are referring to patient S., who developed this reflex the day of a fire when he experienced excessive excitement accompanied

by a morbid dysfunction of the intestines. The dysfunction also occurred monthly on the day of the fire.

It will be noted in conclusion that in a number of cases it is important to differentiate the neuroses developing according to the mechanism of the pathological conditioned reflex from those conditioned by the presence of a trigger point in the cerebral cortex.

When isolated cortical points emerge, the mechanism of the morbid state consists, according to Pavlov, "precisely in the derangement of the balance between the antagonistic processes: *it is now one and now the other process that considerably and mainly weakens.*"[1] (Emphasis by the author.) By virtue of this, " . . . contacting these points by adequate stimuli leads to a rapid and sharp drop in the total conditioned reflex activity."[2]

Such a trigger point is usually based on a stably fixed focus of concentrated excitation persisting for a long time because of the zone of negative induction which insulates it and conditions the pathological inertness of the stimulatory process. For this reason it manifests itself continuously and daily. Thus, the trigger point in the cerebral cortex is a point at which activity is chronically deranged.

On the other hand, a pathological conditioned reflex is based on a fixed conditioned reflex bond between an indifferent stimulus and a pathological reaction of the organism.

We therefore believe that for purposes of diagnosis and therapy of neurotic ailments it is important to differentiate the mechanisms by which the trigger point and the pathological conditioned reflex are formed.

ENDOCRINE REORGANIZATIONS OF THE ORGANISM

We have already discussed the problem of the influence of verbal suggestion on the functional changes in the higher nervous activity conditioned by various endocrine reorganizations of a physiological nature. We have noted that disorders of the higher nervous activity may easily arise precisely under the conditions of some endocrine reorganization or other taking place in the organism and involving a lowering of the cortical tone.

We have often observed neurotic ailments arising on this basis and most frequently developing acute forms. The following are several observations.

1. Patient K., 38 years old, complained of obsessive ideas and fear, unusually high irritability, poor sleep, fear of going mad and owing to this anxiety for her mental integrity. Until then she had considered herself well-balanced, sensible, strong-willed, hardy and efficient. She had been sick several months and had lost a good deal of her efficiency.

An anamnestic interview revealed that she had developed her obsession while soliciting for a friend of hers who had fallen mentally ill (consultations with physicians, solicitations for a place in a psychiatric hospital, etc.); she was not inclined to consider this the reason for her condition,

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 461.

[2] *Ibid.*, p. 374.

however, because she had regarded the ailment of her friend comparatively calmly, "in a business-like manner," and her friend's mental state had not particularly impressed her. But more extensive questioning disclosed a circumstance which enabled us, we think, to make a correct approach to the genesis of her compulsive state (which was confirmed by the success of the subsequent psychotherapy). It was found that the solicitude of the patient for her friend coincided with her menstruation and in addition was connected with fatigue and lack of sleep. The aggregate of these factors could not but lower the tone of the cerebral cortex which, as was later established, was acted upon by the words of friends and relatives who kept warning her that "constant association with a mental patient may make her mentally ill herself." All this favoured the formation of an obsessive fear, according to the physiological mechanism of suggestion.

The patient was explained the physiological mechanism by which obsessive ideas are formed and the groundlessness of her anxiety for the state of her own mind, which completely reassured her. It was possible to remove the obsessive ideas and fear of going mad by three sessions of psychotherapy with the patient in a drowsy state. She left quite reassured. Her subsequent fate is unknown.

Whereas in the foregoing example the pathogenesis was connected with the period of menstruation, the following observation testifies to the negative influence exerted on the higher nervous activity under certain conditions by pregnancy.

2. Patient N., 41 years old, complained of an obsessive fear of any conversation about theft because under the circumstances she always got the idea "she was guilty of the given theft." At any mention of theft the patient grows pale, becomes embarrassed, begins to tremble and has a ringing in her ears. She is afraid of reading newspapers because they may have an item about theft. She stopped associating with people in order to aviod accidental mention of theft. She has had this phobia for eight years.

It was found that at the age of 33 in the sixth month of pregnancy she visited with her mother-in-law. Some money was lost in the house while she was there. It was later found in her handwork where it had been put by a girl who had suffered from kleptomania and had stolen it; the girl was her mother-in-law's niece. The patient was very much distressed by this affair and as a result developed the aforesaid phobia. Rational psychotherapy produced no effect, because mention of the reason for her ailment excited the patient still more. Six sessions of psychotherapy with the patient in a suggested drowse removed the phobia.

The following observation is more complicated as to the clinical picture it offers but is just as effective as regards the results of the treatment.

3. Patient R., 44 years old, was brought to us in a serious depressive-anxious state with delusional hypochondriacal ideas and tormented by a "fear of inevitable death." Holding on to her left wrist, she maintained with tears in her eyes that her "heart had stopped, there was no pulse and the end was near," etc. It was impossible to make any contact with her; when addressed she did not react and kept saying the same thing over and

over: "I feel bad since I have no more heart because it stopped," etc. She was in a state of mobile excitement, desperate, and maintained that her "intestines had swollen up" and they were "hard as rock." Explanations and persuasions were of no avail.

According to her sister, she was in the same state of excitement and anxiety at home, constant tears, suffering from insomnia and stubbornly refusing to eat because of an aversion for food since she "would feel worse if she ate." She did not avoid people because she was "afraid of being alone," but in company spoke only about her ailment, ashamed of neither sex nor age, exposing her abdomen and asking that it be felt to make sure that there was a swelling in it. Her behaviour kept everyone on edge, she never left home considering herself so weak that she might "feel bad on the way and faint." She did not want to go to the hospital for fear of dying outside her home. Her menstruations had ceased three months previously and in the preceding months had been scanty and irregular. Symptoms of vegetative dystonia were observed—depression, general weakness, sleep disturbances, rapid onset of fatigue during work, attacks of palpitation and complaints of pain in the mammae where a hardness was palpated. All this worried and upset her, but she was still able to continue with her work.

This hypochondriacal and delusional state had begun to develop about a month and a half previously, when an unpleasant sensation in the stomach while she was at work had greatly upset her. Palpating her stomach, she felt the pulsations of the aorta and deciding it was a swelling was very much frightened. From that day on she had been constantly alarmed and worried, spent sleepless nights, cried at her work and had been in a depressive-anxious state. She was firmly convinced she had a swelling in her stomach. The polyclinic referred her to a psychiatric clinic but she was brought to us first.

The patient was administered a motivated suggestion during suggested sleep for the purpose of reassurance. Sleep was quickly induced and the first session resulted in general reassurance. The following seven sessions effected progressive improvement. Two weeks after the beginning of the treatment the patient went to work. Subsequently, she showed only the usual symptoms of climacteric vegetative dystonia and traits of an anxious and nervous character which did not interfere with her work. We received the last information about her five years after recovery: she was well, energetic, gay, very sociable, industrious and efficient, liked her work but was somewhat self-conscious.

We believe the positive effect of psychotherapy proves the psychogenic nature of the reactive hypochondriacal psychotic state, which had developed according to the physiological mechanism of autosuggestion in a patient apparently belonging to the strong variant of the weak general type of nervous system weakened still more during the period of an endocrine reorganization (climacteric).

It appears to us that the foregoing examples may serve to illustrate the heightened capacity for functional trauma to the higher nervous activity of some people during the physiological endocrine-vegetative reorganization in their organism.

HEIGHTENED SUGGESTIBILITY AND AUTOSUGGESTIBILITY

We have already said that, according to Pavlov's teachings, suggestibility is based on an easy transition of the cortical cells to an inhibited state of dissociation in the activity of the cortex.

The following are several examples:

1. Patient S., 20 years old, believes herself somatically perfectly healthy. For a certain period, according to physicians, she showed "extremely heightened lability of cutaneous trophics" and considerable suggestibility, which manifested themselves in the form of various psychogenically appearing tissue reactions. Thus, when one of the patients in the hospital once complained of a rash on her forearm, while the physician went his rounds, she had developed a rash of an analogous nature (in the form of *urticaria*) at the same place on the forearm within a few hours. She repeatedly had tissue reactions which developed according to the physiological mechanism of suggestion under analogous conditions. This time it was a matter of heightened autosuggestion effected through the visual analyser and connected with various disorders of tissue trophics.

It was ascertained that several months previously the patient had suffered a very grave psychic trauma (undeserved reprimand on her job, transfer to other work, and, owing to this, a forced break with the person she loved and by whom she was soon to have a child).

The psychic trauma sustained during pregnancy apparently resulted in a sharp drop in the cortical tone, which aided in the development of extreme suggestibility and autosuggestibility, as well as in a considerable heightening of the lability of tissue trophics in a form of a vegetative imitational reflex.

2. Patient R., 42 years old, came with complaints of insomnia and anguish experienced in connection with the loss of her husband whose sickness and death she took very much to heart. Until then she was quite well, was noted for her fearlessness and strong will and apparently belonged to the strong and well-balanced type of nervous system. She informed us that soon after her husband's death she had the following unusual cutaneous pain reaction: while working in a factory she saw one of the workers seriously hurt by an iron object in the region of his right wrist. She saw blood and became very much upset. Several minutes later she felt a strong pain in the same place on her right arm which continued for several hours.

Her central nervous system apparently weakened by her grief occasioned by her husband's death was also reduced to a state of extreme suggestibility and autosuggestibility during which she could very easily reproduce the picture of an emotionally coloured imitational reflex. It is possible that here we had a reproduction of a pain reflex according to the mechanism of autosuggestion.

Analogous cases had been described in literature. V. Manassein (1877) cites the following observation.

A mother saw a heavy sash drop on the hand of her child and sever three fingers. This affected her to such an extent that she continued to sit motionlessly and look at the child until a physician bandaged the child's wound and addressed her. Much to the surprise of those present, the

mother showed a swelling of the three fingers which had been severed in the child by the sash though until then, her fingers had been perfectly well.

3. Patient M., 37 years old, shows signs of extreme autosuggestibility manifesting themselves as follows. During his rounds the professor told her that her gastric juice would be taken through a tube. Immediately after this, the patient had a strong attack of vomiting. Subsequently, she learned that the patient who had occupied her bed before her had the itch; she began fearing the same day that she might also have it and as a result she developed blisters and a rash between her fingers. After a corresponding explanation and persuasion by the physician who treated her, the rash disappeared towards the same evening. The patient related that while in Yessentuki, she took a bath doubting that the bathtub was clean and immediately developed a rash all over her body, the rash persisting for ten days.

4. Patient K., 25 years old, once examined an exhibition of medical preparations, moulages of skin swellings and rashes in venereal diseases; it occurred to him that he "too, may be infected." Three or four hours later he developed a swelling on his arm at the same spot that was shown on a moulage. Alarmed, he went to a physician but the latter was not in. While he was searching for another physician, the idea of infection weakened and upon returning home he went to sleep; when he woke up, the swelling was gone.

In cases, in which autosuggestion is effectuated, an essential part is played by the intense emotional experiences which have caused it (fright, embarrassment, anxiety, fastidiousness, etc.); not only local vegetative disorders, but even complex vegetative-endocrine reorganizations may take place according to the mechanism of autosuggestion as it happens, for example, in cases of autosuggested pregnancy.

In conclusion, we shall cite an observation in which an obsessive neurosis developed into a complex kinaesthetic syndrome formed on the basis of a revival of trace reactions.

5. Patient K., 20 years old, complained of an overwhelming desire to bark like a dog and of a constant feeling of anxiety, heart-sinking, fear of remaining alone in a room (because in this case the "barking" became stronger), vestibular symptoms when riding in a tram-car, bad sleep and constipation. She had taken sick a month previously after being frightened by a dog that had bitten her. While under the strong impression of this she recalled the words she had heard at one time that "those who were bitten by a dog begin to bark." From then on she developed an overwhelming constant "barking" which forced her to discontinue any association with people. Medical treatment (pharmacotherapy, baths and electrotherapy) like the explanations and persuasions of authoritative physicians failed.

An acute negative emotion conditioned by the bark and bite of a dog resulted in the given patient in a protracted asthenization of the cerebral cortex and, hence, in increased autosuggestibility. This produced a focus of inert excitation in the speech-motor zone of the cerebral cortex on the basis of autosuggestion, the excitation manifesting itself in the form of irresistible motor reactions which reproduced the sounds of a dog's barking.

Several sessions of suggestion during suggested sleep radically removed the above syndrome of the obsessive-compulsive neurosis: the compulsive "barking" disappeared, the pre-morbid cheerfulness was restored, the patient regained her normal night sleep, while the vestibular symptoms, heart-sinking and constipation were gone. She went away healthy; 25-year catamnesis without relapses.

The foregoing shows that when the tone of the cerebral cortex is lowered heightened suggestibility and phenomena of autosuggestion can equally become factors which extremely facilitate the emergence and development of a neurosis. The physician must take them into consideration when analysing the aetiology and pathogenesis of the neurosis.

SIGNIFICANCE OF SECONDARY SECOND SIGNAL RE-ELABORATION

Many stimulations acting on man's cerebral cortex during the waking state are not immediately reflected in any particular acts of the higher nervous activity and are retained in the form of traces. Some of these innumerable stimulations, however, especially if they are emotionally coloured, i.e., connected with a charge from the subcortex, under favourable conditions, for example, during a transitional phasic state of the cerebral cortex, suddenly seem to become revived and begin to exert their influence on the cortical dynamics.

It all happens because the cortical centres have retained traces of former stimulations. These traces come to the fore as soon as the inhibiting action of the cerebral cortex on the subcortical centres weakens. Revival of trace processes is quite possible in this manner since, according to Pavlov's teachings, the subcortex is the source of energy for the entire higher nervous activity, while the cerebral cortex plays the part of regulator of the subcortex delicately directing and inhibiting it.

As the traces of what has just been experienced are revived new temporary bonds may be coupled among the trace processes in man, these new bonds usually relating to the sphere of second signal activity. Conditions for the formation of new cortical dynamic structures, not infrequently firmly fixed, are thus created and these dynamic structures, are therefore able to influence the entire trend of higher nervous activity.

The secondary second signal re-elaboration plays a very important part in man's physiology of the higher nervous activity. In particular, it underlies *interpretation* of experience or perception. In such cases conditions can sometimes be set up for cortical dynamics in which the phenomenon of secondary second signal re-elaboration gives rise to the formation of *pathological* dynamic structures, i.e., it can become definitely pathogenetic.

At the same time phenomena of *autosuggestion* not infrequently develop according to the same physiological mechanism of second signal re-elaboration. The temporary bonds emerging under these conditions are usually out of touch with the phenomena of reality and therefore influence the cortical dynamics inadequately.

The following are several observations.

1. Patient M., 28 years old, told us that a month previously roentgenoscopy revealed a pathological change in the apex of his right lung "in the form of a focus the size of a plum." The patient received this news calmly and was healthy and cheerful as usual because he had known this for two years. But a week later, while he was falling asleep, it suddenly occurred to him that the "process might be developing and would soon give rise to putrefaction." He was frightened, woke up, but soon fell asleep again. Since then, however, he has been obsessed with this idea: he has felt as if he had a "plum" inside and has been anxious and depressed. Whereas until that day he had been sure of his health and never thought of the affected apex of the lung, he now completely lost his peace of mind.

A session of explanatory psychotherapy was conducted; the patient was told his anxiety was entirely ungrounded and was given several examples showing the development of similar obsessions and even states in anxious and self-conscious people. Coming back a month later he told us that after that session his obsession had "faded and lost its overwhelming character," and that he was completely rid of it.

2. Patient K., 37 years old, complained of an obsessive fear of dying of a paralysis of the heart which he had developed five months previously under the following circumstances. While in bed, ready to go to sleep, he once read a report on the sudden death of actor Shchukin of paralysis of the heart. He knew Shchukin personally and this news greatly impressed him, though it did not interfere with his sleep and he slept well, as usual. But no sooner did he wake up in the morning than the thought flashed through his mind: "I, too, will die as suddenly as Shchukin."

Since then this thought has become obsessive, the obsession being so strong that it robbed him of his peace of mind and interfered with his work. Fearing for his heart, of which he had never thought before, since he had always been perfectly well, he went to a hospital. An X-ray showed no changes, however. But, the diagnosis "cardiac neurosis" alarmed him still more. Another physician diagnosed "myocarditis." After reading an article on myocarditis in the Big Soviet Encyclopaedia he decided that he had "galloping myocarditis." In response to our reassurances, he said: "I understand the absurdity of an obsession, but there is nothing I can do about it." Two sessions of suggestion with the patient in a suggested drowse removed the obsession.

Cases are not infrequently observed in which the obsession is also connected with secondary second signal re-elaboration, but takes its source from the *content of a dream* which has left a sufficiently strong impression. The content of dreams is, as is well known, "an unusual combination of usual experiences" (I. Sechenov). I. Pavlov believes that a dream is a result of a "revival of the first signals with their imagery, concreteness and emotions, when the just beginning hypnotic state first of all shuts off the organ from the system of second signals as the most reactive part of the brain, which always functions mainly in the waking state and regulates and at the same time inhibits, to a certain extent, both the first signals

and the emotional activity."[1] Thus, the content of the dream cannot of itself exert a reverse influence on the processes of higher nervous activity.

After awakening, however, and if the analytical activity of the cerebral cortex is weakened, the content of the unusual and vivid dream may become the source of autosuggestion by forming temporary bonds with the traces of the former stimulations and thus become a definite pathogenetic factor. This is illustrated by the following observations.

1. Patient Z., 37 years old, complains of overwhelming fear of death, an obsessive idea of going mad and of headaches. He has considered himself sick for a period of 18 months since he had a very vivid and striking dream: he was approached by a woman in white who solemnly said: "I am Death, I am leaving, but I shall be back two hours later." The patient woke up, immediately awoke his wife and told her what he had dreamt. Very anxious the wife turned on the light, looked at the clock and didn't turn the light off for two hours waiting for them to pass. Two hours later the patient lost consciousness for one or two seconds, his hands and feet grew cold and he decided that his dream "presaged his fate." From then on, he began to have nightmares. In connection with this someone peremptorily said to him: "If the dream does not come true in three days it will certainly come true within a year." In an anxious and depressed state the patient began awaiting death within a year. He lost his peace of mind and could find no rest day or night. He believed himself doomed, incurably ill. He applied to physicians in polyclinics, listened to talk about possible "fatal ailments," though no symptoms of disease were discovered in him. He became extremely self-conscious of which he had never shown any signs before; on the contrary, he had always been self-confident, well-balanced, vigorous and efficient. He had been a tankman at the front, never drank too much and had a normal heredity.

Six sessions of motivated suggestions administered during suggested sleep fully removed the pathological syndrome. The patient regained his peace of mind and self-confidence. He was under observation for a period of a year and had no relapses (observation by A. Sosedkina).

In this case, the content of the dream was also an "unusual combination of usual experiences." Interpreting the significance of this event, the patient entered on a wrong path. This resulted in a psychic trauma and developed a trigger point in the activity of the cerebral cortex, according to the mechanism of suggestion and autosuggestion. Diagnosis: obsessive-compulsive neurosis.

We thus see that superstitions may give rise to neurotic ailments.

2. Patient R., 63 years old, came to the clinic of neuroses in May 1951 with a complaint of an obsessive thought and an obsessive haunting image of a woman dressed in blue who, in a sinister voice, keeps repeating the same phrase: "You will die of heart failure." Very much frightened, the patient gets a sensation of something gripping her heart and then her head. The obsessive thought and image are very unpleasant to the patient who is inefficient at work, can no longer do her housework and has developed suicidal tendencies. She tries not to think of it and regards all her ideas

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 392.

critically, but cannot do anything about it herself. She feels temporarily relieved only after sleep.

She has considered herself sick for the last four years, and connects her ailment with the dream in which she saw a woman dressed in blue who had said in an impressive voice: "You will die of heart failure." She woke up in the morning with sharp stinging pains in the region of the heart, fears, anxiety and a haunting picture of her dream. She was referred in a serious condition to the clinic of neuroses where she spent a month (September 1948). After psychotherapeutic treatment she was discharged in good condition. She felt satisfactory until March 1951, though still uncertain about her condition, while the obsessive thought and her dream recurred. Her son-in-law suddenly died in March 1951. For a period of a week she thought him alive. Then, the obsessive thoughts which had troubled her in 1948 resurged very vividly.

An analysis of the mechanism by which the dream was formed revealed the following: 25 years ago the patient visited a certain "famous" fortune-teller who, after examining her cards, told her in an impressive voice: "You will die of heart failure. Your heart is like a cobweb. Presto, and you are no more." At first the patient argued with the fortune-teller that she had a good heart and no cause for alarm. In response to her, the fortune-teller very weightily said to her: "It may be good now, but it will be sick because I never err in my prophecies."

Leaving the fortune-teller the patient for the first time felt as if her heart were gripped in a vice, generally weak and alarmed. She got home with difficulty and since then had slept poorly for a period of a month, constantly thinking of death. The patient told us that she had then applied to a psychiatrist who by psychotherapeutic sessions with the patient in a light drowsy state allayed her sufferings. It will be noted that the patient considers herself extraordinarily self-conscious: "Everything sticks to me like glue," she says about herself. "Because of this fatal visit to the fortune-teller I have lived as in a fog for 25 years."

During her first days in the clinic the patient had no appetite, her sleep was disturbed and she was in a dejected mood. After six sessions of suggestions with the patient in a state of suggested sleep she regained her appetite and normal sleep, grew much calmer and her anxiety and uneasiness disappeared. The obsessive ideas occurred much more rarely and were less vivid. Towards the end of her stay in the clinic she began to work and was then discharged improved; she was under our subsequent observation for a year and a half; there were no relapses (observation by A. Sosedkina).

The above patient had sustained a psychic trauma inflicted by a fortune-teller and fixed in the form of a trigger point stably retained for a period of 25 years and removed only by a series of psychotherapeutic sessions conducted during suggested sleep.

3. Patient D., 41 years old, complained that she felt bad, had headaches and an overwhelming obsessive fear "lest her mother hang herself." She believed her ailment due to a dream in which her mother had hanged herself; the patient had a convulsive reaction already in her dream. The dream was provoked by the words: "I'll hang myself some day," uttered by her mother in a fit of anger.

At that time her mother's words failed to impress her because her mother had never displayed any suicidal tendencies. Some time later, however, the patient had the aforesaid dream the content of which, as we see, was fixed by her mother's words (activity of the second signal system) and a concrete visual image appearing in the dream (first signal system). By means of secondary fixation this, in turn, led to a development of an obsessive neurosis. Two sessions of explanatory psychotherapy on the conscious level with a detailed analysis of the train of the events and an explanation of the complete groundlessness of the obsessive idea reassured the patient and freed her of the obsession.

Thus we see that the phenomena of secondary re-elaboration are based on the emergence and fixation of a pathological temporary bond between two foci of concentrated (dominating under the circumstances) excitation. One of them is the product of a trace reaction of the recent past, fresh and at the same time sufficiently strong emotional excitation (i.e., with irradiation into the subcortex) and the other is a product of a trace reaction of a past second signal experience associatively connected with it. This cortical temporary bond assumes, as it were, a character of an indirect suggestion since in the latter the point of concentrated excitation also lies not only in the sphere of activity of the second signal system, but spreads to the first signal system as well, i.e., forms a complex focus of excitation.

Before attempting to treat neuroses we always conduct a more or less detailed anamnestic interview, which must always precede any method of psychotherapy on the conscious level or under hypnosis. We always acquaint ourselves, at least in general, with the patient's higher nervous activity. The collection of the anamnesis and the somatic examination of the patient are aimed at determining the *nature* of the ailment (whether it is functional or organic) and at ascertaining in detail the *causes of its origin and the conditions* under which it developed. The nature of the syndrome is also determined. Only after ascertaining all the circumstances under which the given neurotic ailment has developed, do we resort to a particular method of psychotherapy.

Sometimes it is not immediately possible to ascertain the concrete conditions of the psychogenesis, but as practice has shown, this is no obstacle to the use of psychotherapy, at least symptomatic, which considerably relieves the patient's condition and facilitates a detailed anamnesis.

It will be noted that the patient does not always remember the real factor which traumatized his mind. If the patient does sometimes remember the reasons for his ailment, he frequently interprets them incorrectly. However, traces of forgotten stimulations may, under certain conditions, be reproduced by means of consistent questioning of the patient himself, his relatives and other witnesses of the development of the ailment. In addition, we sometimes make use of the patient's autobiography with a detailed written exposition of all the circumstances connected with the events in his life that might have traumatized his mind.

A certain category of patients should be acquainted with the conditions which predispose and contribute to the development of the disease. In such cases the patients may more easily recall the pathogenetic situation in their recent or remote past.

A detailed analysis of the concrete causal factors and pathophysiological mechanisms of the ailment is essential for the effectiveness of subsequent psychotherapy. Thus an *extended* and *deepened* anamnesis is the most important part of the physician's psychotherapeutic approach to the patient. This not only predetermines the content of psychotherapy but also establishes a positive attitude, a complete faith in the physician and a frankness in the patient in the interview with the physician so necessary under these circumstances.

Most of the patients begin their complaints with a description of the general conditions under which the ailment developed. The patients usually narrate the events not in the sequence of their development but as a general incoherent enumeration of various circumstances. Most frequently they begin with narration of the *reasons* for the disease. We therefore help the patients by asking them to tell us about the events successively, *according to a calendar plan,* if possible indicating the date and the role these events had played in their lives.

We endeavour to question the patients in the following main directions:

1) The patient's complaints, his experiences, and how he feels, in other words, we get an "internal picture of the ailment";

2) The time the disease appeared and has lasted;

3) The conditions under which the disease developed, particularly the nature of the factors which traumatized the mind, their concrete content and the patient's attitude to them;

4) Former treatments and their results;

5) The patient's pre-morbid state.

CHAPTER XIX

PSYCHOTHERAPY AND PSYCHOPROPHYLAXIS OF NEUROSES

> ... In addition to the cases occurring on congenital grounds, there are the inevitable cases of unstable, delicate nervous systems engendered by misfortunes: trauma, infection, intoxication and violent shocks.
>
> *I. Pavlov*

We shall now consider the most characteristic varieties of neurotic ailments forming the nucleus of the clinical fund of neuroses. We shall confine ourselves to a more or less detailed analysis of only a few of the cited examples, presenting, we believe, the greatest interest, particularly with respect to the effectiveness of the psychotherapy administered.

OBSESSIVE-COMPULSIVE NEUROSIS

An obsessive-compulsive neurosis, manifesting itself in the form of various compulsions, urges and impulses, constitutes the largest group of neurotic ailments. These include obsessions, irresistible impulses, urges or acts, psychogenic tics, overwhelming fears (phobias), etc.

In considering the problem of psychotherapy to be used in this type of neurosis we should, first of all, make note of the extant and erroneous idea that the obsessive ideas, fears, etc., testify to the presence of psychasthenia. Therefore, these symptoms presumably resist treatment and psychotherapy is powerless in these cases. On the basis of our observations we take the liberty of introducing certain clarity into this problem.

First of all, we must emphasize that the idea that an obsessive-compulsive neurosis is incurable is justified only in the case of "pure" hypochondria (N. Zotina)[1] or obsessions in processual psychoses. Here, however, we are dealing with neuroses, i.e., functional disorders of the higher nervous activity, especially those which manifest themselves as certain obsessive states.

[1] Quoted from N. Tatarenko (1951).

As is well known, they arise from a trigger point in the cortex or from a firmly fixed pathological dynamic structure.

The development of an obsessive-compulsive neurosis may be conditioned by a lowered positive tone of the cerebral cortex and the presence of excessively strong or constantly recurring stimulation of the same cortical cells which leads to the development of a pathological inertness in the process of stimulation. This results, as I. Pavlov says, in "excessively and unjustifiably stable ideas, feelings and, subsequently, actions which do not correspond to the correct natural, and especially social, relations of man." Hence, the "difficult, distressing and harmful clashes both with nature and with other people, and above all, of course, with himself."[1]

The physiological mechanisms by which an obsessive-compulsive neurosis develops were revealed by I. Filaretova (I. Pavlov's laboratory) and M. Petrova (1946) (in experiments on dogs). The latter found that, as long as the nervous system was in a state of equilibrium, these phenomena did not appear; they manifested themselves only under the influence of certain exhausting factors, when "the inhibitory process, which is much more labile and weak than the excitatory process, becomes weakened." As soon as the weakened inhibitory process grows stronger and nervous equilibrium is fully restored these phenomena disappear.

It will be noted that the foregoing model experiments on animals clearly testify that psychasthenia, which can never occur in animals, *is not at all necessary* for the development of an obsession. This is all the more essential since, in speaking of the pathological inertness underlying the obsessive state, I. Pavlov notes that "it is hardly possible to object to the statement that this conclusion can be rightfully transferred from animals to human beings."[2]

Thus, obsessive states may develop in people with different types of nervous systems (weak or strong) provided their nervous system has been weakened by some preceding disease. In diagnosis it is therefore always necessary clearly to differentiate whether there is a psychasthenia as such, a developing processual psychosis or a purely reactive obsessive-compulsive neurosis which has emerged as a result of psychic trauma. Pavlov distinguished the latter as an independent disease. In persons of the intellectual type an obsessive-compulsive neurosis reveals psychasthenic symptoms, while in persons of the artistic type it is usually marked by pronounced hysterical symptoms.

Obsessive states may occur in various general neuroses, a point which was clarified by V. Bekhterev, Y. Belitsky (1906), S. Davidenkov (1948, 1952), et al.

The following cases illustrate the picture of an obsessive-compulsive neurosis in its various clinical manifestations and demonstrate the results of psychotherapy.

1. Patient S., 51 years old, complained in 1931 of an *overwhelming fear of high places,* which had appeared 16 years previously after an unusually fast ride in an automobile along a Crimean mountain highway; during the

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, pp. 408-409.

[2] *Ibid.*, p. 411.

ride he suffered for several hours from "extreme emotional tension" experiencing an unconquerable fear that the automobile "might fall off the enormous height." This fear of height became fixed and stabilized, acquiring an inertia which persisted for many years and interfered with his work. Since then, he has been unable to climb stairs above the first floor, especially if the windows on the staircase were open; he was especially afraid to look down the stairs because "some irresistible force made him want to throw himself down." Owing to this, he had "always been in low spirits and felt ill at ease." In the last two years all the foregoing phenomena had become somewhat aggravated for reasons impossible to ascertain.

Psychotherapy on the conscious level failed. Seven sessions of psychotherapy were conducted, the first two with the patient in a drowsy state and the others in a state of suggested sleep. In this manner all the phenomena of acrophobia were completely eliminated. He was under observation for two years. Positive catamnesis, no relapses (observation by N. Zelensky).

In this case (as in many analogous cases), the acrophobia arose and became fixed under conditions overstraining the inhibitory process. This fully corresponds to S. Petrova's data according to which the nature of the acrophobia induced in her experimental dogs "was based on nervous trauma."

I. Pavlov observes that the development of acrophobia is based on what "may be called *torture of the inhibitory* process."[1]

"Neurotic ailments conditioned by a "difficult encounter" which leads to the onset of pathological *inertness* of the inhibitory process are found in man in the form of overwhelming phobias of other types: fear of catching cold, fear of contamination and filth (mysophobia), fear of infection, fear of going mad, etc.

2. Patient Z., 42 years old, complains of a feeling of extreme dejection and an *irresistible desire to hang herself,* as a result of which she has developed an obsessive fear of hooks, ropes, towels, etc. The struggle against the above desire is sometimes so intense that the patient faints. While working, several days before the first manifestation of the aforementioned desire, she heard from one of her fellow-workers about a woman who had recently hanged herself; the person who told the story had seen the event and related it very vividly. The patient did not take it to heart but upon awakening at daybreak three days later she felt "some inner anxiety"; not yet fully awake she got up and, after taking a step, saw a towel on the chair. A thought about "making a loop and hanging herself" immediately flashed through her mind. She was greatly frightened and from then on the thought of hanging herself has haunted her all the time.

Since the sharply fixed suicidal tendency, which had developed according to the mechanism of secondary re-elaboration, persisted for several days, it was suggested that the patient be placed in a psychiatric clinic. But the patient and her husband flatly refused. After warning the husband of the necessity of watching the patient at home, we administered psychotherapy in the dispensary during suggested sleep with following suggested

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 466.

rest. The patient proved very suggestible; two of these sessions completely eliminated the compulsive suicidal tendency, and restored to the patient her usual composure. Still retaining her composure and self-confidence, the patient was demonstrated at the institute one and a half months later during a republican conference of psychiatrists (observations by A. Sosedkina).

3. Patient D., 34 years old, complains of an obsessive *fear of contamination and filth* (mysophobia): she washes her hands incessantly because the slightest contact with things immediately makes her feel "contaminated" and impels her to wash her hands. In addition to this, she complains of being depressed, apathy, loss of interest in life, and excessive irritability aroused in her by association not only with her relatives to whom she "has become intolerable," but also with her fellow-workers.

Her fear of contamination has reached the point where she no longer trusts the preparation of food even to her mother. She usually cooks her food a long time, boiling the meat to a mush. Before using the toilet she performs a lengthy hygienic ritual: one of her relatives must first wash not only the toilet bowl, but also the walls, the floor, the doorknob, etc. She uses the toilet with painful precautions, anxiety, irritability and a need to wash her hands, clean her clothes, etc. She cannot drink water in any "dirty" (in her opinion) room (where there is dirty linen), from a tap located near a toilet, etc. Preparations for a meal are also accompanied by a lengthy hygienic ritual. Besides, she has often vomited since childhood quite apart from the meals, for example, because of unpleasant odours and at the sight of dirty places. All this—fear of any contact, contamination and infection, compulsive hand-washing, vomiting and a serious state of dejection—has made her intolerable to herself and to the people around her. In the last four years her morbid state has taken a sharp turn for the worse, apparently due to a number of new distressing experiences. Walking in the street is painful to her because she must be constantly careful not to see or smell anything unpleasant, not to see a garbage can, etc.

She has normal heredity, was born healthy, never considered herself nervous, has always been efficient and happy in her family life; she is unable to account for the causes of these compulsive symptoms. Detailed questioning revealed that she began vomiting at the age of eight when she saw, as she relates, "a piece of faeces in a plate of soup" cooked by her mother. Thereupon she vomited and fainted.

Until then the girl had been very fastidious in food because of her mother's slovenliness which sharply contrasted with the cleanliness in her girl friend's house.

After the incident with the soup, she began feeling nauseous and vomited according to the mechanism of a temporary bond, i.e., she developed a pathological conditioned vomiting reflex. The gradually developing state of obsessive fear of contamination severely exhausted her nervous system and predetermined her serious neuropsychical state. Her treatments in polyclinics and in the neurological division of the Ukrainian Psycho-neurological Institute, where her case was diagnosed as psychasthenia, were ineffectual. Finally, she was no longer able to fight her "incongruous squeamishness" and this impelled her to apply to the psychotherapeutic department of the institute.

The connection between the ailment and the living conditions, as well as the mechanism of the origin of vomiting and the other symptoms of her ailment were explained to the patient, but the explanations did not reassure her. A motivated suggestion was therefore made to her while she was in a drowsy state during her next visits. The first two sessions produced no tangible results, but after the third session she felt much better. After the eleventh session of psychotherapy the entire aforementioned syndrome disappeared, the patient was returned to normal life, alert and cheerful. She was perfectly healthy during the subsequent five years. Five years after recovery she was presented at a conference of physicians of the dispensary and the psychotherapeutic department of the institute. She said that "she thought of her former ailment only on the eve of the conference when she was visited by a physician who asked her to come to a meeting at the dispensary." According to our information, she has had no relapses in 12 years.

This patient suffered from an obsessive-compulsive neurosis which manifested itself in fear of contamination (mysophobia) and resulted in compulsive behaviour. Several sessions of suggestion, while the patient was in a drowsy state cured her disease and restored the patient's normal behaviour. In this case the concrete causes of the neurosis and the conditions under which it developed were disclosed, the correctness of the diagnosis being confirmed by the success of the subsequent therapy.

The following observation is interesting in that it throws light on the conditions under which the pathological phenomenon from the series of compulsive tendencies known in psychiatry as kleptomania develops. It manifests itself in an irresistible impulse to steal one thing or another without any tendency to make use of the things stolen. It is well known that it is the desire to perpetrate the theft rather than to possess the object that is specific for this form of pathological compulsion. Our observations and the data in literature show that in kleptomania the value of the stolen object is usually irrelevant to the thief.

In the past, this type of obsession, like all other types of obsessive-compulsive neuroses, was ascribed by psychiatry to "degenerative" phenomena having an unclear genesis; the prognosis was unfavourable and there was no treatment for it. We know of cases from literature and our own observations of well-educated and well-to-do people committing suicide because of their unsuccessful struggle against this compulsion which was incompatible with their ethics. The following is a case aimed et emphasizing the inadequacy and error of the Weismann-Morgan psychiatric conceptions.

4. Patient A., 11 years old, was brought to the dispensary by the house superintendent who had heard the cries of a boy being beaten by his mother: "Do not beat me for stealing! I do not want to steal, but I cannot help it!" The neighbours confirmed that the boy stole without purpose, abandoning the stolen objects in the barn. A chat with the boy revealed that he had begun stealing at the age of 6 under the influence of his constant street companions on whose insistence (sometimes under threat of a beating) he secretly took his father's tools. At first he did this reluctantly, because of the fear of being beaten by his friends, but subsequently got used to it and kleptomania developed. In addition, he became rude, and

lazy as regards his school work, began to lie and use bad language. Teachers were unable to influence him.

After a preliminary medical consultation eight sessions of suggestion were conducted during suggested sleep. As a result, the patient completely reformed and became (according to his teacher) one of the best-behaved children at school. The symptoms of kleptomania fully receded and never recurred. He was under observation for 4 years during which time the catamnesis remained positive.

This also elucidates the mechanism of the development of kleptomania in adults which, as is well known, was considered a "degenerative" and therefore incurable disease.

Concerning the other forms of obsessive-compulsive neuroses, mention should be made of various compulsive movements (tics, cramps) due to psychic trauma. According to Pavlov's teachings, all such cases of "patterns of skeletal movement" should be regarded as an "expression of the pathological inertness of the stimulatory process in the cortical cells connected with movement."[1]

The question of possible *relapses* of obsessive-compulsive neuroses successfully treated by verbal suggestion is of great interest to the physician. By observing patients for many years after recovery from an obsessive-compulsive neurosis, we have found that a relapse of the compulsive syndrome may be due to certain physiological conditions and in no way denotes incorrectly administered treatment.

Thus we have convinced ourselves that relapses occurring several years after recovery are due to physiological states connected with a lowered tone of the cerebral cortex. In addition, traces of the previously formed cortical pathological dynamic structures were positively inducted. These were somatic ailments, infectious or toxic, endocrine-vegetative reorganizations (mainly in women—periods of pregnancy, lactation, menstruation, and the climacteric) in which the tone of the patients' cerebral cortex had long since been low. Any new psychic trauma may play a similar role.

1. Patient M., 54 years old, sanguine type, came to the Clinic of Neuroses in October 1935 complaining of headaches, lack of self-confidence and, mainly, *fear of sharp and cutting objects;* at night, he hid all knives and forks. This way connected with a compulsive impulse to "kill his family—wife, daughter, and sons and then do something to himself." Upon finding a sharp object, he would turn it point down, fold a penknife, etc. To inhibit his compulsion he occasionally wounded himself lightly with a sharp object and thus rid himself of his pathological urge for some time. He was afraid of staying with his family for the night lest he "stab them all to death" during the night. Because of this he lived 40 kilometres away from his family visiting them only on his days off and carefully hiding from the members of his family the real reason for his mode of life. This compulsion lasted for 17 years, having begun during the Civil War (the territory in which he lived had been under the sway of Makhno's and Petlyura's bands) when he had spent a year in constant fear of being murdered together with his family. He then decided "it would be best if

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 443.

he killed his family himself and then committed suicide rather than die at the hands of bandits," and prepared sharp knives and poison. He had been in this anxious emotional state for one and a half years until the establishment of Soviet power.

The treatment administered at the Clinic of Neuroses of the Ukrainian Psychoneurological Institute in 1932 (physio- and psychotherapy) resulted in considerable improvement lasting 3 years. But in 1935, after extreme overwork which deprived him of normal rest and sleep, his compulsion recurred. After hypnosuggestive therapy and physiotherapy, the compulsion completely disappeared and the patient became cheerful and sociable. He was so well for a period of 6 years that he could live with his family calmly. But in 1941, after the death of his son, he suffered a relapse. He entered the hospital for the second time and was discharged in good condition. The compulsion recurred in 1945, when the patient learned of the death of his second son; he was admitted to the same section of the hospital for the third time in January 1947 and was discharged in good condition at the age of 70. In 1952, he was treated by psychotherapy following a slight new manifestation of fear of "sharp objects" arising after an attack of influenza. It will be observed that the relapses of his compulsion were at times so strong that the patient used various pretexts to move away from his family.

Finally, in 1953, after new distressing experiences (chronic illness of his wife) his old compulsion recurred, this time becoming stabilized and yielding neither to psychotherapy nor to any other methods of treatment. This was due, evidently, to a senile, i. e,. irreversible, decline of cortical tone.

In this case we, apparently, have a patient with a strong variety of the weak general type of nervous system who, because of protracted overstrain of the inhibitory process, developed and firmly retained a compulsive urge. Psychotherapy and medical treatment which served to enhance the tone of the cerebral cortex removed this pathological dynamic structure. But under the influence of negative emotional experiences (too strong for the patient), an attack of influenza, overwork connected with lack of sleep, etc., the compulsion recurred and was eliminated by psychotherapy. Finally, a new relapse of the same obsession occurred against a background of senile involutional phenomena and became irreversible.

The following illustrates cases of relapse of obsessive ideas which arose during the climacteric and show the significance of the endocrine-vegetative reorganization that revived already extinct obsessive states.

2. Patient G., 52 years old, complained of syphilophobia. She had lived for a number of years in a peasant family in which, as she later learned, there were syphilitics. An obsessive idea of inevitable infection developed and gained strength. She underwent continuous tests for syphilis always with negative results. Lived for 10 years in anxiety and in constant torment and doubt as to whether she had contracted syphilis. During the subsequent 16 years, the doubts were dispelled and the patient was well. The obsession recurred, however, coinciding in time with the menopause and the beginning of the climacteric. Thus the relapse was based on a physiological

mechanism of senile vegetative-endocrine reorganization and lowered tone of the cerebral cortex.

3. Patient Z., 49 years old, complained of obsessive thoughts about her husband whom she had left 25 years before. She had never thought of him during that time, but began thinking about him in connection with the onset of the climacteric. She suddenly recalled how she had mistreated her husband and developed a state of "gentle melancholy" followed by a compulsive desire to "see him." Under the influence of this compulsion, she started making inquiries about her husband and upon learning that he was living in another city, went there, wrote many requests to have him traced, etc., aware of the incongruity and uselessness of it all.

Her compulsive state apparently resulted from a revival of traces of things experienced in the distant past, the revival occurring under the influence of the climacteric, an endocrine-vegetative reorganization accompanied in some people by a decline in the positive tone of the cerebral cortex and because of this by a disturbance of the equilibrium of the basic cortical processes.

We have had occasion to observe analogous phenomena during the climacteric in other patients. The question of asthenia developing in the cerebral cortex during pregnancy and the climacteric, and predisposing to the development of an obsessive-compulsive neurosis is treated in detail in one of N. Tatarenko's papers (1951).

It is now rather appropriate to consider A. Löwenfeld's interpretation (1912) of the relapses in obsessive-compulsive neurosis. According to this author, "treatment by hypnosis is not a radical method in this disease because, even with a favourable outcome it is impossible to prevent recurrence of the disease. Only one method can prevent relapses and this is the method directed at the roots of the disease lying in the 'subconscious,' the method of Freud." Our observations, in common with all Pavlov's teaching on neuroses as a whole, expose the anti-scientific nature of Löwenfeld's point of view based on Freud's erroneous teachings.

Our observations indicate the possibility of successfully treating and preventing relapses by suitable measures which raise the tone of the cerebral cortex.

SEXUAL NEUROSIS

By sexual neurosis in its broadest sense we mean the various functional disorders of the higher nervous activity connected with the sphere of relations engendered by the sexual instinct. These disorders may develop according to different physiological mechanisms—the mechanism of obsession in cases of ungratifiable or unrequited love, on the one hand, and the mechanism of cortico-visceral pathology in the form of disorders of the sexual function, on the other.

We shall now consider the nature and pathogenetic factors in the development of neurotic disease conditioned by an overwhelming and ungratifiable love attraction. On this question, Pavlov said that ". . . a long series of shocks, such as the loss of dear ones, unrequited love and other deceptions in life," connected with "injury to one's self-respect," "evoke in a

weak person the strongest reactions attended by abnormal so-called somatic symptoms."[1]

We also find some references to this question in I. Sechenov's works. According to this author, such an overwhelming passion "is destined to lead to various so-called self-sacrifices, i.e., is likely to disregard all biological impulses, even that of self-preservation"; "... *these phenomena are essentially reflexes, only complicated by an admixture of passionate elements.*" (Emphasis by the author.)

An ungratifiable desire, which frequently takes on the character of an overwhelming obsession, gives rise to an ailment in the form of a neurosis (K. Platonov, 1925, 1926). It is based on the mechanism of concentrated excitation caused by erotic emotion and operating at a certain point or section of the cerebral hemispheres.

We have in mind an intense feeling, a persistent erotic attraction which is either rejected or, for some reason or other, cannot be gratified.

If such a predominant and unconquerable emotion is ungratified it may actually produce acute overstrain of the nervous processes in the cerebral cortex and the adjacent subcortex, provoking a derangement in the higher nervous activity which manifests itself in the form of a severe reactive depression sometimes leading to a catastrophe.

It will be observed that in this form of "erogenous" neurosis the patient frequently receives no medical treatment because not only the physician finds it unnecessary to question the patient in this respect, but also the patient believes his condition to be "beyond medical help." Due to an understandable bashfulness, the patient often cannot bring himself to be frank with the physician about his personal life. Moreover, the patient's life is charged with a great emotional strain whose force and significance may easily be underestimated by the physician.

Such experiences are not infrequently the source of a severe derangement in higher nervous activity, which sometimes leads to suicide. It is possible that in these cases it is a matter of a firmly fixed complex dynamic structure which affects very gravely the whole character of higher nervous activity. It manifests itself in feelings of melancholy, internal discord, apathy and violent jealousy, is accompanied by various extraordinarily tormenting components on the part of the vegetative nervous system, and may lead to inhibition of the activity of important divisions of the cerebral cortex which represent, according to Pavlov, "... vital interests of the whole organism, its integrity and its existence."

In these sharply and intensely developed depressive neurotic states neither pharmacotherapy nor hydrotherapy are of any avail. Psychotherapy administered in the waking or drowsy state or during suggested sleep in most cases produces a positive and radical effect in a very short time. This is in clear opposition to the assertion of A. Forel, well-known Swiss psychiatrist and hypnologist (1910), that "it would be useless to suggest to a girl in love hatred and antipathy for her lover since the feeling of sexual love is much stronger than the influence of outside suggestion." Apparently, Forel was not aware of the fact that *in such cases,*

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 378.

the success of treatment is ensured by the desire of the patient himself to be rid of his feelings.

Our observations of 52 persons (12 men and 40 women) suffering from "erogenous" depressive neurosis vividly illustrates the efficacy of psychotherapy: in 30 cases treatment was exceptionally successful—not only the pathological condition, but the feelings themselves were completely eliminated; in 5 cases success was partial (symptomatic) and only 10 persons showed no effect. The reason for it was that 3 of them had no desire to be treated, while the remaining seven did not yield to hypnosis. Psychotherapy administered in the waking state failed.

The most frequent causes of erogenous depressive neurosis in our patients were: unhappy or unrequited first love, or love with obstacles to marriage; abandonment by the beloved person (husband or wife); moral inferiority of the object of attraction; awareness of the inadmissibility of feelings because of a big age difference or mental disease; second marriage with love for the first husband lingering on, coupled with a striving to get rid of these feelings; break-up because of incompatibility with the former love for one another persisting, etc.

Failure on the part of the physician to take these aetiological factors into consideration inevitably leads him on to the wrong track. A 45-year-old patient suffering from erogenous depressive neurosis had been treated for six months in a polyclinic for arteriosclerosis without success. After the real cause of the ailment was discovered and hypnosuggestive therapy was administered, the patient got well. The effect of this therapy is usually persistent and thorough.

1. Patient M., 28 years old, had been suddenly abandoned by her husband about six months before she came to the dispensary. She was still very much in love with him, was therefore depressed, and suffered from psychogenic visual and auditory hallucinations (image and voice of her husband) for a period of six months. The patient fully recovered after five sessions of psychotherapy during which indifference to her husband and recovery were suggested to her. Positive catamnesis for 22 years (observation by A. Breslav).

2. Patient N., 21 years old, complained of depression, melancholy, excessive irritability, lack of interest in life, suicidal tendencies, insomnia and restless nights, total lack of appetite and considerable loss of weight. She had been sick several months; the cause—love for a completely amoral person who was also greatly inferior to her, a situation which "made her suffer." Her own struggle against this feeling and the help of her friends were futile.

Explanatory psychotherapy failed to produce a positive effect. In the course of five sessions of motivated verbal suggestion during suggested sleep, the feeling of love gradually disappeared, and sleep, appetite and her former cheerfulness were restored; two weeks after the beginning of treatment, the patient felt she was "totally rid of her nightmare." Positive catamnesis for 2 years: she was well, cheerful, and buoyant, successfully graduated from an art school and never recalled the "object of her unhappy love." The cause of this complex reactive affection was thus removed by means of psychotherapy. The patient subsequently fell in love with another man and married him.

3. Patient K., 32 years old, complained of insomnia, loss of interest in life, greatly lowered efficiency, loss of appetite and weight. He thought his state was due to the "feeling of passionate love" for one of his co-workers. He said the ineffective struggle against his feelings had "tormented" him for a month and made him "suffer extraordinarily."

He came with the request "to help him get rid of his feelings and to regain his efficiency." "She captivated me the moment we met," he said with emotion. "At first she treated me kindly, seemed to show some attention and a preference for me and I was a prisoner of my feeling for her. I could not be a moment without her. I lived for her and was thrilled when I saw her. Soon I observed that she started keeping company with other men. I became jealous and began to lose self-control, something which affected my work badly. On seeing her animated in the company of other men, I developed palpitations, blushed and grew dizzy so that my co-workers considered me drunk. Everything that was in any way connected with her thrilled me. She mocked at me, however, and flirted with other men. On learning of her new romance, I lost my head altogether. My co-workers tried to persuade me to forget her. Finally, I decided not to think of her any more, but I could not forget her. I could not imagine living without her, though I was aware that she was not my equal in intellectual development and, besides, was not good-looking, but . . . I was attracted to her and was helpless. . . ."

We administered psychotherapy with the patient in a drowsy state. During the first session, when the patient lay with his eyes closed and listened to the words of suggestion, he (as he told us later) "suffered keenly when he was told he would forget her." On coming back a week later, he said he felt much better. Although he saw the girl daily after work, his attraction for her considerably waned, he began to feel better, his appetite and sleep also improved, and he was no longer jealous though he had every reason to be. Coming to the third session, he told us: "Though I think of her quite often and still feel attracted to her, the attraction is now of a somewhat different nature." Whereas before the administration of psychotherapy he was persistently tormented by thoughts of her and every thought of her caused him "mental anguish," it was all gone now. "I have more will-power now," the patient stated. His feelings towards her also changed. "I like her, but in a calm way now, and feel she will not make my life but will break it." Coming to the fourth session, the patient said: "I am completely indifferent to her and no longer even want to think I used to like her so much. I feel reborn and believe I have changed." A deep drowse was induced for the first time during this session. He observed that, after this session, he regained his deep, sound night sleep. He was perfectly composed in his feelings towards the girl. He turned down her invitation to come to see her. "I do not think of her any more and I feel fine." Finally, after the following session, he told us: "There is not a trace of feeling for her. I often wonder how a person can change. It is as if I have never loved her at all! I am surprised that I was able to rid myself of this horrible infatuation."

After the last (eighth) session the patient told us he "was completely rid of his terrible ailment"; he had regained his normal sleep, interest in life,

efficiency and will-power. "I am the same I was before my illness; I am not attracted to her any more and no longer think of her."

Four months after the treatment he was presented at a conference of psychotherapists. He continued to feel well. Although at work he frequently saw the former object of his love, he was totally indifferent to her.

We shall now consider the second group of sexual neuroses developing in the form of functional disorders in the sexual sphere.

It will be observed that the problem presented by this group of neuroses has for a long time been very scantily elaborated. Urologists, gynaecologists and psychoneurologists have all been hard put to it with respect to diagnosis and therapy. Nor have the venereologists, to whom some of these patients found their way, been any the more adept. Having no concept of the aetiology of the disease, nor of the underlying physiological mechanisms, they have been incapable of producing the required therapeutic effect and have only traumatized the patients by fixing even more of the latter's attention on the impaired function of their sex organs which, as a rule, were in perfectly good order since the pathology was not in the sex organs, but in a disorder of cortical dynamics. It follows that no local remedies (cauterization, bouginage, prostatic massage, hormonal therapy) could help, but, on the contrary, led to a still greater fixation of the pathological dynamic structure in the cerebral cortex.

Finally, it has become a matter of general recognition only very recently that patients in this category should be treated by psychotherapists.

As early as 1922, V. Bekhterev said, on the basis of his observations, that the "obscure problems of sexual pathology would become much clearer to us if investigated by the reflexological method of research or by the method of developing combinative reflexes." Bekhterev concluded that such sexual disorders as premature ejaculation, impotence and all sorts of sexual perversions (fetishism, masochism, sadism, homosexuality, infantomania, etc.) developed according to the mechanism of combinative (conditioned) reflexes. He considered these disorders psychogenic and therefore subject to psychotherapy which should be administered either while the patient was in the waking state or during suggested sleep. He considered it essential to discover beforehand all data related to the cause of the ailment and to examine all the external conditions which, in the opinion of the patient himself, might in any way be connected with the onset of the disease.

Our observations support Bekhterev's statements since more often than not it is really a matter of external stimuli, both positive (exciting the sexual feeling) and negative (inhibiting, suppressing the attraction and leading to impotence). The impulses may come from the first signal system (various first signal stimuli from a person of the opposite sex) or from the second signal system (corresponding words, thoughts, ideas); either signal system may be the prevailing factor in each individual case.

It is not our intention to paint a broad picture of the complex problem of sexual neurosis and the conditions under which it develops; we shall confine ourselves to citing a few typical illustrative examples.

1. Patient A., 29 years old, with normal heredity, complained of his inability to consummate the sexual act because of rapid ejaculation occurring at mere contact. His first attempt at coitus at the age of 20 failed and since then all attempts at intercourse failed despite normal erection,

This strengthened him in the belief of his sexual impotence, he developed a severe state of depression, and gave up the idea of marriage.

Four sessions of psychotherapy with the patient in a drowsy state were conducted. Suggestions of confidence in the feasibility of consummating the normal act and a calm attitude toward it were made. The effect was positive. The patient got married and began a normal sexual life.

2. A 30-year-old patient complained of total impotence which he had treated with electricity, narzan baths, etc. He had been married for 2 years, but his wife was still a virgin. Constant failure over a period of 2 years resulted in a distressing psychic state and threatened to destroy the family relations which, in other respects, left nothing to be desired. Physiotherapy was useless. The ailment was caused by his anxiety lest he fail during the initial intimacy with his wife. Unsuccessful attempts at coitus fixed the obsession of sexual impotence. Every subsequent attempt at intercourse inevitably failed. He applied to us several days before the end of the unavailing spa treatments in Kislovodsk.

Six sessions of verbal suggestion with the patient in a drowsy state were conducted; suggestions were made with a motivated reference to his physical health, the groundlessness of his fears and anxieties, and to complete confidence in his ability to consummate the act of coitus, etc. The effect was positive, and his family life was adjusted.

3. A 30-year-old patient married an 18-year-old girl a month before coming to us with the complaint that, at the beginning of the sex act, he developed an overwhelming fear of possible failure, and his erection immediately receded. His lack of confidence "may be due to the great difference in ages." The first failure increased his anxiety and set the stage for subsequent failures.

Two sessions of verbal suggestion by Bekhterev's method (the patient awake but with his eyes closed) were conducted. The following letter was received a week later: "I have stopped taking treatments because everything is already in order. Your suggestion made even while I was awake has apparently influenced me sufficiently strongly."

4. A 24-year-old patient complained of impotence. At the age of 13 he fell off a horse, hurt his testicles and was confined to bed for 3 days. According to the patient, his grandmother kept crying and saying he "would be incapable of sexual intercourse." At the age of 18 coitus with a casual female acquaintance was suddenly interrupted by a loud noise in the adjacent room. Fright terminated his erection which subsequently could not be elicited. The idea of sexual impotence occurred to him; he "recalled his grandmother's words." The next attempt at intercourse was attended by anxiety and he was unable to consummate the sex act. It occurred to him that "grandmother must have been right; I am impotent." Since then, he had no erections for six years despite his libido. Treatment by specialists: prostatic massage, bouginage and electrization brought no relief.

Three sessions of explanatory, reassuring and encouraging psychotherapy with the patient in the waking state were conducted. One week later, the patient reported restoration of his normal sexual potency.

5. A 29-year-old patient complained of total impotence since the age of 24. He had masturbated from the age of 8 to 18, particularly intensely since the age of 12. He married at the age of 19 and his sexual life was normal.

On learning from him about his past masturbation, his wife told him he "would soon become impotent." He was greatly impressed by his wife's words and at night, dreamt his wife had left him. He was under this impression for a few days. His erections soon grew weaker and then discontinued. He had been totally impotent and dejected ever since.

Four explanatory and reassuring interviews conducted on the conscious level failed. A deep drowse was induced during the fifth visit. After four subsequent sessions of psychotherapy during suggested sleep his normal sexual function was restored.

6. An 18-year-old patient avoids riding a swing because this arouses a strong sexual excitement in him, sometimes to the point of orgasm. The sight of anyone on a swing is also enough to excite him sexually. At the age of 10 he had these sensations while on a swing. At first he did not deprive himself of this pleasure, but having learned it was harmful began to avoid it.

During the subsequent two years, the conditioned reflex sexual reaction evoked only by the sight of anyone riding a swing began to recur. It was removed by two sessions of verbal suggestion with the patient in a drowsy state.

In relation to this Bekhterev said that, by forming a more or less strong connection with sexual excitement, any stimulation, in general, "finally becomes a customary stimulant of the sexual function."

POST-CONTUSIONAL NEUROSES

It is well known that post-contusional or post-commotional neuroses last very long (for years) and stubbornly resist the most diverse methods of treatment. The neurotics of this type are therefore usually regarded as "fugitives into disease."

The results of the psychotherapy administered in these neuroses in a number of cases appear to present a certain theoretical interest and practical significance. All the cases we observed show that the disease was severe, that it had been treated for a long time and that psychotherapy produced a relatively rapid and persistent effect.

1. Patient S., 40 years old, entered the hospital of the psychoneurological dispensary in October 1929 with complaints of dejection, trembling of the whole body, convulsions with loss of consciousness following excitement, obsessive ideas of a hypochondriacal nature, and poor sleep. When falling asleep, he "suddenly thinks of the shocks he has experienced," starts up, "pants for breath," breaks out in a sweat and then cannot sleep for a long time. His moods change frequently; one day he feels good, is calm, well-balanced and cheerful; the next day he is anxious as if anticipating trouble. He has frequent nightmares.

Anamnesis: ailing for 10 years, since 1918, when he was beaten up by the White Guards (in Odessa); he had been well until then. Was twice sentenced to be shot by the Petlyuraites, but escaped. Was shell-shocked in 1920 when serving as locomotive engineer of an armoured train: the shell hit the locomotive and the patient was thrown down the embankment. Does not know whether he hit his head, but was unconscious for 3 days. Spent

two months in an army hospital and says he exhibited a traumatic neurosis which expressed itself in heightened irritability, tearfulness and bilateral deafness for 7 months. Was discharged in a satisfactory condition, though he could not consider himself entirely well; some "inner nervousness" remained, he had lost his former "self-confidence" and had become irascible. Continued working on his former job as locomotive engineer, however.

In 1923, he suffered a railway accident while driving a fast train; the derailed locomotive rolled down the embankment, the patient suffered a contusion, lost several teeth and fainted. Spent two months at an Odessa sanatorium; was affected with mutism for three months during which he made himself understood by signs and writing. Stuttered for a long time after recovery of speech, became extremely irritable, his "character went bad." Some time later, developed "commanding" fits, which occurred 3 to 4 times a day at first, and then less frequently.

Subsequently was an invalid for 3 years (1923-1926); was treated at sanatoriums in Kislovodsk, Odessa and Kiev.

There was some improvement, but it did not persist, and the fits stopped for no more than a month. Depression persisted, as did the insomnia and disturbing dreams. Decided to go to work in 1926, but worked with great difficulty, this state, varying in intensity, persisted till 1929. Had a fit of convulsions with loss of consciousness caused by excitement at a dispensary examination in June 1929. Was sent to the hospital of the Kharkov Psychoneurological Dispensary. Had another fit the day after arrival at the hospital; the fit was accompanied by shouting and convulsions, but without loss of consciousness, and was followed by extreme weakness.

Physical examination revealed disturbance of all modalities of superficial sensitivity (functional type) and slight anisocoria.

Spent two weeks at the hospital and was treated by hydro-, electro- and bromotherapy. Seizures did not occur. Was discharged in good condition, but a month later returned with complaints of heightened irritability, general weakness, poor, disturbed sleep and depressed mood. Could not tolerate the mention of locomotives, trains or anything connected with them, and has developed obsessive ideas about past experiences.

Hypnosuggestive therapy was prescribed, and all other forms of treatment were cancelled. Proved to be easily suggestible. A reassuring, encouraging and explanatory suggestion during hypnotic sleep aimed at strengthening the hope for recovery, removing the pathological symptoms that worried him, etc., was made. The session was followed by suggested rest. After awakening and the next day he felt much better and was in a better mood. During the following session, in addition to the preceding suggestion, the patient was instructed to forget his past traumatic experiences and not to take anything connected with them (sight of locomotives, carriages, etc.) to heart. Special emphasis was made on normalizing sleep, appetite, bowel movement, etc.

After 12 sessions of hypnosuggestive therapy, the patient was discharged in good condition with a gain in weight. He was very anxious to go to work, regained his self-confidence and showed no disorders of sensitivity. He reported a week later that "locomotives or anything connected with them no longer irritated him."

He was under observation for 7 months, during which time he worked on a locomotive, considered himself well and fully regained his efficiency. According to information received 2 years later, he continued working on a locomotive (Fig. 82; observation by A. Konstantinova).

Thus, the patient had had psychic (death sentences) and two mixed (physical and psychic) traumas. The first had apparently acted as factors lowering the cortical tone. The two subsequent traumas (physical and

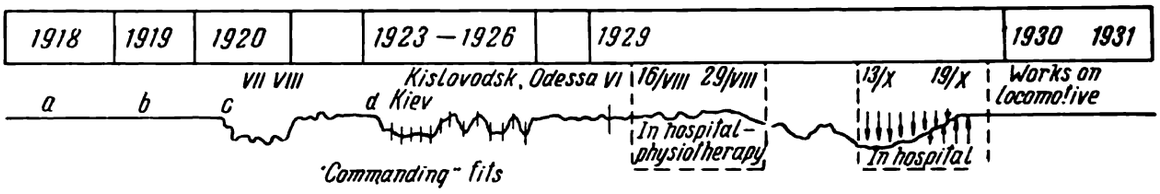

Fig. 82. Diagram showing development of traumatic neurosis and efficacy of hypnosuggestive therapy.

a—beaten by White Guards; *b*—sentenced to be shot; *c*—contused, unconscious for 3 days; *d*—railway accident, sustained contusion with loss of consciousness. Arrows indicate sessions of hypnosuggestive therapy.

psychic) influenced the development of a reactive neurosis in a hysterical form, which did not yield to treatment for a period of several years and incapacitated the patient for almost a whole decade.

Whereas the spa treatments had produced no effect, hypnosuggestive therapy quickly restored the patient's health and efficiency. It will be recalled that the first two-week stay at the hospital where only physiotherapy was administered brought but temporary relief which lasted a month. But after the psychotherapy administered by us, the patient had no relapses for a number of years. This may serve as proof of the persistent results of the treatment.

The aforesaid patient apparently had a long-continued pathological inertness of the inhibitory process with a phasic state of the cerebral cortex due to the sustained mixed (physical and psychic) trauma.

It is very likely that the patient could have returned to work much sooner if psychotherapy had been administered at the right time.

2. Patient K., 30 years old, is an invalid. In 1920, during the Civil War, he was shell-shocked; this was attended by loss of consciousness for several hours and resulted in the development of a neurasthenic state with heightened irritability. At the beginning of 1921, he felt better. In the spring of 1921, he fought a battle with bandits, was wounded in the head and the right shoulder and was beaten. A severe hysteroid condition with excessive irritability and extreme hyperacusis developed: the least noise, sudden sound or knock made him start. In time, the patient developed a stabilized reaction to these stimuli in the form of convulsive "commanding" fits with loss of consciousness. He could not tolerate being in hospitals or sanatoriums.

In March 1921, he was sent to Pyatigorsk where he was placed in a separate room isolated from noises and darkened with blinds. By August, the patient felt much better, regained a modicum of balance, became more sociable and developed greater resistance to strong light and sound stimuli. Started working in an office. In September of the same year, a boiler

explosion at a neighbouring plant frightened him and as a result the patient again developed the same syndrome with heightened irritability and "commanding" fits. His former acute sensitivity to sound stimuli returned. Dispensary treatments and a two-month stay in Slavyansk in 1922 did not essentially benefit him and resulted only in some temporary relief. This condition persisted till the summer of 1923, when he was sent to a health resort in Slavyansk again. During his month's stay at the sanatorium he grew excessively irritable, reaching the point of aggressive affect; he had conflicts with the patients and the medical personnel, and "commanding" fits. The question of discharging him as "not amenable to treatment and discipline" was raised.

We proposed that he be retained for 2 weeks for hypnosuggestive therapy. He proved to be very suggestible. He was given a two-hour suggested rest; confidence in recovery, forgetfulness of all war experiences, emotional equilibrium, a calm reaction to sound stimuli, restful night sleep, etc., were suggested to him. Four sessions of hypnosuggestive therapy sufficed to change the patient beyond recognition. Restful night sleep was restored, and he reacted calmly to any mention of the war, the explosion and to sudden noises. He had never felt so hale and hearty "all through his illness." He did not have a single convulsive "commanding" fit and left Slavyansk 5 days ahead of time, anxious to go to work. In 1924 and 1926, he reported he was well and completely rid of his neurosis (Fig. 83).

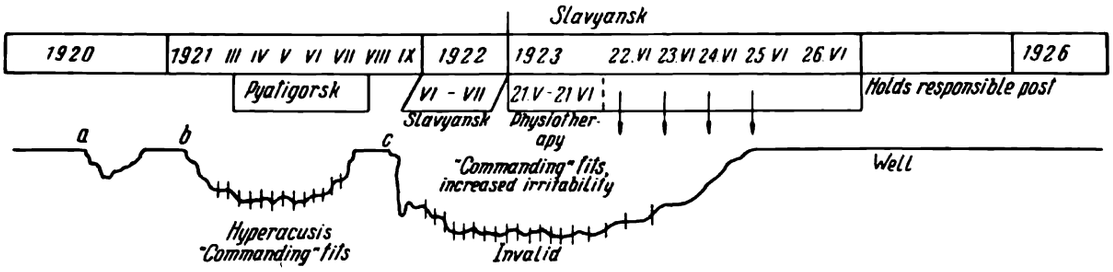

Fig. 83. Diagram showing development of neurosis and efficacy of hypnosuggestive therapy.

a—air-blast contusion; *b*—wounded by bandits; *c*—boiler explosion. Arrows indicate sessions of hypnosuggestive therapy.

The foregoing example of a traumatic hysterical syndrome lays particular emphasis on the efficacy of hypnosuggestive therapy: it accomplished in 4 days what had been done to a lesser extent by 5 months of spa treatments (Pyatigorsk).

3. Patient G., 28 years old, while driving a military train in June 1919, was shell-shocked and wounded in the top of the head. He was unconscious for 8 hours, stayed in a hospital for one and a half months and upon discharge was found to be "unfit for locomotive service" by a commission. Complained of persistent headaches, giddiness, tremor of limbs, weakness, and very poor and disturbed sleep (2 to 3 hours a night). Until December 1919, when he came for a repeated examination, he had remained at home being treated at a polyclinic where he was afforded but slight relief. The commission referred him for consultation to determine his fitness for work in the transport system in general. He exhibited general asthenia and

tremor of limbs, and complained of irritability, inclination to tears, headaches, disturbed sleep and bad dreams with pictures of battles.

Diagnosis: post-contusional neurosis. The patient was very suggestible. Eight sessions of suggestion during suggested sleep were conducted. The patient was instructed to forget his 1919 experiences and to sleep soundly at night. Deep suggested sleep was induced during the third session which was followed by marked improvement. After the eighth session, the patient stated he "was perfectly well." He resumed work on a locomotive after treatment was completed and worked for 14 years.

All the foregoing case histories belong to the category of mixed trauma—physical and psychic—and they all show a clearly pronounced neurotic state which could be alleviated only by psychotherapy with subsequent suggested rest. What causes these states? Are they psychogenic? If we take the effect of psychotherapy administered during suggested sleep as a criterion, the psychogenesis of these states, frequently inevitable in physical traumatism, is obvious.

Present-day knowledge of the mechanisms underlying the formation of neurotic states, which arise somatogenically, suffices to explain scientifically the results of psychotherapy in post-contusional and post-commotional neuroses. The studies conducted by G. Ivanov-Smolensky and his associates, which have thrown light on the pathophysiological mechanisms of post-traumatic neurotic states, are particularly important in this problem. These studies testify to the direct development (after physical and extraordinary psychic trauma) of transmarginal protective inhibition which embraces not only the entire cerebral cortex, but also the subcortical area (unconscious state accompanied by a depression of the vegetative functions).

Thus there is every reason to speak of a cortical, dynamic nature of post-traumatic neurotic states with an underlying pathological inertness of a superficial protective inhibition.

OCCUPATIONAL NEUROSES

We have encountered occupational neuroses, i.e., functional disorders of higher nervous activity, which have to do with the nature of the occupation, mainly the arts. More often than not, we deal with actors and musicians whose activities are connected with important public appearances. It will be observed that neurotic diseases of this type are encountered not only among professionals, but also among students (at secondary schools of music and conservatoires). The symptoms of a neurotic state manifest themselves most clearly during public appearances (concert or theatrical) and affect the performance. In some people, the neurotic state becomes so acute that they must either abstain from public appearances or give up their professions altogether. Unfortunately, many of them do not know that their neurotic state is curable and that the cure can be effected by psychotherapy. We thus know that if Bekhterev had not accidentally discovered that one of our country's prominent pianists and composers of world renown was affected with such a neurosis and had not

cured him of this state, the pianist would have been forced to give up his profession when he was still young.

These neurotic diseases (so-called "footlights neuroses") manifest themselves in various forms: fear of crucial passages in an operatic aria, excitement during the performance which diminishes the sonorousness of the singer's voice, forgetting various lines during the performance; excitement which interferes with the speed and confidence of movements of the musician's (pianist's or violinist's) fingers or causes finger cramps not observed when they perform under other circumstances.

The reasons for these neuroses are many and varied. Thus a single failure during a performance, without any serious reason for it, may provoke the recurrence of the failure in a subsequent performance. This failure may be due to some morbid state which arose on the eve of the performance. It may be favoured by a protracted neurotic state connected with troubles of everyday, family and work life. Lastly, the performance of a pianist during pregnancy, menstruation or the climacteric, which in some women weaken the tone of the cerebral cortex, favours formation of a neurotic reaction which may subsequently become firmly fixed, etc.

Our following observations will serve to illustrate the foregoing.

1. Patient K., 28 years old, complained that in the last three years, while singing the part of Gilda in "Rigoletto" she had a sense of overwhelming fear when she came to the highest note in the aria with the candle (second act), whereas she was absolutely at ease about the rest of the performance. Before this act begins she is seized with fear lest she miscarry the high note. She is "extremely worried" when singing this aria, especially as she approaches the "difficult place"; she develops spasms in her throat and "slurs" over this note, i.e., uses various means to disguise her defect. Of late, she has begun feeling worried several days before the performance. Prior to this, she had always sung confidently, calmly and quite perfectly to the very last note.

The very first interview revealed that 3 years ago, the day she had to sing Gilda's aria, her tuberculous mother had her first haemophthisis. She had to sing the aria while very anxious and worried; a great deal depended on the way she sang this aria and she took it very seriously. In view of her uncommon anxiety and alarm over her mother's condition, she focussed her attention especially on the final note and began to fear lest she fail at the high note. She took the note, but not as usual: she was sure she had "flopped," and this made a very bad impression on her. She evidently sang while her cortical tone was lowered and from that day on, lacked confidence in herself as regards this note, this lack of confidence becoming greater with each performance of Gilda's aria. All this forced her to give up her role in "Rigoletto" which, according to general opinion, was the best in her repertoire. In other operas, she continued performing as confidently as ever.

Four sessions of verbal suggestion with the patient in a drowsy state produced a positive effect: the obsessive fear developed according to the conditioned reflex mechanism was removed and, as subsequent observations over a period of 8 years showed, never recurred.

2. Patient N., 30 years old, opera singer, came to us in October 1935 with the complaint of a morbid excitement "arising during the perform-

ance of one of his difficult parts." He sang all his other parts well and confidently. The excitement had arisen only during the preceding week. Until then he had always been entirely composed. He noted that he had formerly experienced normal excitement before the performance, whereas now this excitement sharply increased before his appearance on the stage in the first act, he had "palpitation, was very anxious, his regular breathing was disturbed, the blood rushed to his head and he even had a slight headache." He began singing in a nervous state with an obsessive idea that he "might not be able to sing his part to the end." He sometimes muffed it in the second and last acts because he did "not sing freely, but strained." After the performance, he had a feeling of being broken up physically and morally and, while walking on his way home, he "was under the impression that everybody looked at him," though there was no one about. "To my horror, two performances have already thus passed and I am anxious about the coming performances," the patient said.

The patient once had to sing this part while indisposed in order not to cancel a performance (since the actor who sang this part took sick); the theatre management asked him to sing, but he did not care to because of his indisposition, though he was finally prevailed upon. After this conflict with the management, he went home irritated and was therefore unable to take a nap, which always refreshed him, before the performance. He went to the theatre in the same state of irritation. The first and second acts went off well, but towards the third act, he felt depressed. He noticed before the performance that his voice was giving out. In the third act, his voice miscarried several times—a fact which did not escape the public. He left the theatre dejected. That night he slept well. His next performance came two weeks later. On the day of the performance, he began worrying in the morning. This performance was also unsuccessful: he was excited, lost his confidence already in the second act; in the third act, he even skipped an aria; in the fourth act, his voice miscarried several times.

Subsequently, the thought of this part alone was enough to worry him. He was in low spirits and anxious about the future. "Is this going to continue forever? Must I give up the stage? Why did I study then?"

Psychotherapy was prescribed. After the first session of suggestion with the patient in a drowsy state he left reassured and was in a good mood. He went directly to rehearsal saying he felt fine. He sang well, freely, easily and without any strain. The worries about the opera in which he was to sing the following day disappeared. After the two subsequent sessions of suggestion the entire neurotic syndrome disappeared, and he performed this part, like his others, successfully. There were no relapses during the 3 years he was under observation.

In this case, there were several factors predisposing to the break in the voice: indisposition, conflict with the management, forced performance, growing anxiety before the beginning of a difficult act and the break in his voice which served as psychic trauma. The same trauma recurred at the following performance. It all led to the development of a neurotic state. Psychotherapy administered while his cerebral cortex was in a weak hypnoid state, i.e., with the same lowered tone of the cortex in which the neurosis developed, made it possible to eliminate the neurosis completely.

3. Patient C., 32 years old, violinist, discontinued his performances during the past year and a half because, when he appeared on the stage, he had, for reasons unknown to him, an "indescribable sense of fear and excitement," was totally embarrassed and felt that his heart was sinking. "Somehow I played automatically, my hand trembled and I could not look at the public," he said. His persistent attempts to continue with his concerts failed and he had to give up the stage. For fear of being drawn into public appearances as a social obligation he carefully hid his musical abilities from everybody and living in a remote area played only at home for his relatives closing all the doors and windows "lest the sounds of the violin reach alien ears." One day he was asked to give a concert in the local mining centre. The failure suffered in the preceding six concerts impelled him to reject this invitation as well. The neuropathologist at the polyclinic offered to help him by suggestion under hypnosis, but he would not agree at first for fear it might "weaken his will"; after much persuasion he gave his consent.

The first two sessions passed without sleep or drowse with only a motivated and imperative suggestion made to the patient with his eyes closed; this gave him general reassurance. During the third session of suggestion the patient was obviously sleepy and the session resulted in radical improvement: the patient again wanted to perform at concerts, and the thought of possible performances no longer caused any alarm, excitement or the usual feeling of heart-sinking. On the eve of his performance and just before the concert began he was calm and self-confident. The performance was successful: he played confidently, calmly, unembarrassed and with an ardour that captivated his listeners. He started playing as well as he had ever played before and appeared on the stage without any feelings of fear (observation by I. Khalfon).

Occupational neuroses also occur in athletes. Extraordinarily high demands on their basic nervous processes, i.e., strength, balance and mobility are made during competition. Such neuroses can also be handled by psychotherapy as attested by the following examples.

1. First category athlete I., 25 years old, 10 years athletic experience, specializing in middle- and long-distance runs, came to us with a complaint of a "decline in his running ability" resulting from a "sudden dryness in the mouth and a feeling of being totally muscle-bound, which phenomena appeared during the second half of the distance (5,000 metres)." These symptoms increased to such an extent that they repeatedly forced him to get off the track.

It was a long time before we were able to ascertain the cause of his distress. And only questioning of the patient while he was in a hypnotic state revealed that he had had his first failure when, on one occasion, a day before an important competition, he seriously broke the training rules. All through that day he had a feeling of dryness in his mouth, which interfered with proper breathing, and he was anxious about the forthcoming competition. After a rest he thought he had got rid of these feelings and took part in the games. But at the height of the run, when he developed considerable athletic effort, the "troubling sensations suddenly recurred, he felt muscle-bound and experienced the dryness in the mouth that had made him uneasy the day before." This sharply affected his breathing and

he left the track for the first time. In subsequent competitions he was in constant fear lest this incident recur and as a result repeatedly left the track.

The revelation of this complex in a hypnotic state and its removal by corresponding suggestion rid patient I. of his affliction and enabled him to achieve good results in competition again (observation by M. Brzhezinskaya).

2. Athlete Z., 25 years old, 6 years athletic experience, second category, specialized in the 400-metre run and the 400-metre hurdles.

One day, while running the hurdles, he failed for some reason or other to clear a hurdle. In subsequent meets, he was fretful over his performance and failed to clear a hurdle. From then on the fear of failure was fixed; he anxiously awaited failure and always did fail.

After four sessions of suggestion with the patient in a hypnoid state, the feeling of fear in running the hurdles and the sense of being muscle-bound disappeared, and he regained his self-confidence in clearing the hurdles. The upshot of it was that in subsequent games he not only made a comeback, but also improved his performance in 400-metre hurdles by cutting his time from 60 to 59.3 seconds.

We ought to mention in passing that the method of verbal suggestion is also important in some cases of athletic overtraining.

The following example will serve as an illustration.

Athlete S., 25 years old, first category, 7 years athletic experience (running 5, 10 and 30 kilometres), was a member of the Ukrainian Republican Track and Field Team training for the All-Union games. Was sent to us with complaints of his unwillingness to take part in competition, lassitude, apathy, insomnia, and lack of appetite. In addition to the subjective symptoms of overtraining he also exhibited objective signs.

After four sessions of suggestion conducted with the patient in a hypnoid state, he regained his normal sleep and appetite, his general condition improved and a strong desire to train reappeared; he gave an excellent performance at the All-Union games (observation by M. Brzhezinskaya).

PSYCHOGENIC EPILEPSY

Very interesting theoretically and important practically is the problem of administering psychotherapy in epilepsy provoked by psychic trauma.

The scant information available today warrants the assumption that psychotherapy administered during suggested sleep can really be efficacious in these cases. At the same time it may aid in elucidating the problem of epilepsy and its treatment.

Literary data testify to the successful administration of hypnosuggestive therapy in certain precisely diagnosed cases of so-called genuine epilepsy. This problem was investigated by the following Russian authors: A. Tokarsky (1890), G. Ter-Avetisov (1907), P. Podyapolsky (1913), D. Tikhomirova (1913), V. Khoroshko (1927), and A. Gotsiridze (1929), and the following foreign authors: J. Braid (1843), Wetterstrand (1893), Moll (1909), Gowers (1910), and A. Forel (1928). In administering psychotherapy all these authors observed a more or less sustained improvement. The cases

of genuine epilepsy observed, for example, by Ter-Avetisov were diagnosed by authorities in neuropathology (V. Rot and G. Rossolimo).

The possibility of "curing" epilepsy in this manner was suggested by Wetterstrand who made use of prolonged hypnotic rest. A. Tokarsky was of a similar opinion (1890). Since we now regard epilepsy as a reaction of the higher divisions of the central nervous system to a series of most diverse endogenous and exogenous factors (including psychogenic elements), it is, of course, possible to remove the epileptiform reactions by removing these factors. Thus, the chances are that hypnosuggestive therapy may exert a positive influence on the course of this disease. Psychotherapy is apparently most clearly indicated in cases of Bratz's affectogenic epilepsy and Bonhoffer's reactive epilepsy. V. Khoroshko (1927) emphasizes that the emotional factor in the development of epileptic seizures must not be overlooked. As is well known, most seizures develop primarily affectogenically (mostly under the influence of fright), subsequent epileptic seizures arising without any visible external cause. There are indications that in a number of cases epileptic seizures occur according to the conditioned reflex mechanism (V. Bekhterev, 1922; K. Platonov and P. Istomin, 1926; N. Krasnogorsky, 1933; M. Nikitin, 1934).

It will be noted that the pathological symptoms, presumably typical of convulsive "congenital epilepsy" and therefore difficult to treat, frequently lead physicians to erroneous diagnosis and therapy. There are reasons to believe that affect (fright in childhood) in the pathogenesis of epilepsy in a number of cases escapes the attention of the physician for which reason he regards the disease as "congenital." We have obtained positive results from hypnosuggestive therapy administered by us jointly with P. Istomin (1926) to patients who showed all symptoms warranting the assumption that they were "genuine" epileptics.

1. We shall reconsider the case (see page 151) of the 30-year-old patient who suffered from epilepsy from the age of 5; typical grand mal seizures developed under the influence of fright. Sessions of hypnosuggestive therapy were conducted, the patient coming to the dispensary, every other day at first, then every third or fourth day, once a week and, finally, once in 2 or 3 weeks for a period of 5 months. Whereas before this treatment the seizures had regularly recurred in the first and third thirds of each month, after two months of hypnosuggestive therapy (totally excluding the large doses of bromides formerly taken by the patient) no seizures occurred for a period of 6 months. Besides, the first seizure occurring after the 6-month interval was provoked by a strong emotion (meeting a friend who mentioned his recurring seizures), while the second seizure was due to psychic trauma (death of his father). Taking these circumstances into consideration, we made the following special suggestion during the subsequent series of sessions: "No emotional stress will cause any seizures," etc. Despite the emotional stress experienced by the patient during the year that followed there were really no seizures, the patient remained well, was efficient at his work and gained weight.

2. Patient N., 32 years old, came to the clinic complaining of seizures accompanied by loss of consciousness, convulsions, tongue-biting, and sometimes incontinence of urine. The seizures were followed by sleep. They had begun at the age of 16 after a fright and occurred mostly at night,

2 to 3 times a month. Neurological examination revealed no aberrations; psychically the patient exhibited memory weakness, depression, unreasonable jealousy of her husband and irritability. During the 6 months preceding the beginning of psychotherapy, the seizures had occurred twice a month, nearly always during the second and third thirds of the month.

Hypnosuggestive therapy was administered. Deep sleep was induced during the first session. "Peace of mind, tolerance toward those around her, lack of jealousy, sound nocturnal sleep and confidence in recovery" were suggested to the patient. During the following month, there were no seizures. Subsequently, the patient had one seizure at night "because of excessive fatigue," and one and a half months later had another seizure "after drinking beer and sexual excess."

Treatment lasted 4 months and consisted of one session a week. During the following 6 months, the patient had no seizures and moved to another city. There were only 2 seizures in the course of 9 months.

3. A 32-year-old patient was admitted to the clinic of nervous diseases with the complaint of epileptic seizures occurring 2 or 3 times a month, the patient suffering from them since the age of 13. Clinical observation established typical seizures. Sessions of suggestion during suggested sleep were conducted for a period of 3 months (at first 2 or 3 times a week, then once a week and, during the last two months, once a month). All through that period the patient had no seizures. According to available information there were no seizures during the subsequent 5 months either.

We have repeatedly observed that the epileptic aura reflects the content of the traumatizing factor. In one of the patients, for example, the aura preceding the typical grand mal seizure expressed itself in a sharp pressure pain in the chest. It was found that her first seizure had been provoked by rape during which experience the man kept pressing his elbow against her chest.

Such phenomena, with respect to the aura, were in their time observed by P. Kovalevsky (1896) and V. Bekhterev (1922). P. Podyapolsky's study (1913) shows that epileptic patients can be spared the post-epileptic amnesia by suitable suggestion during hypnotic sleep. Under these conditions, the patients were able to recount the sensations they experienced during seizures. Similar observations were conducted by Riklin (1903).

According to our observations, psychotherapy administered on the conscious level and, especially, during suggested sleep may help in the patient's struggle against the distressing consciousness of his "falling sickness" and the obsessive anxiety engendered by the expectation of a seizure.

We are therefore persuaded that the opinion of psychiatrists and neuropathologists concerning the presumably "inadmissible use of suggestion and hypnosis in epilepsy" is wrong. This problem should be considered in a somewhat different light from which it has been considered until now. There is every reason to expect that bolder steps taken in this direction *may open up new and important prospects in the field of studying and treating epileptic reactions.* We must not overlook the fact that a study of the role of psychic trauma in the development of epileptic attacks may prove especially fruitful in connection with a reconsideration of the

problem of epilepsy from the physiological point of view voiced by I. Pavlov at one of his Wednesday gatherings. He believes epilepsy to be a malady concentrated at a definite point of the cerebral hemispheres and based on a certain pathological state of an isolated point in the cortex.

MINOR NEUROSES

Psychotherapy administered during suggested sleep proves effective also in cases of so-called minor neuroses usually including various monosymptomatic hysteroid reactions (amaurosis, mutism, monoplegia, tics, etc.), the most elementary pathological dynamic patterns and inadequate reactions that do not yield to any other treatment. They also include various harmful inclinations, bad habits, enuresis, overwhelming fears, for example, the fear of mice, thunderstorms and blood (to the point of fainting, especially at the sight of a bleeding relative), habitual sucking of a finger or lip, continuous compulsive protrusion of the tongue (observed not only in children and adolescents but also in adults), compulsive coughing, compulsive functional hiccup sometimes believed to be encephalitic in origin. Déjèrine and Hockler (1912) refer the overwhelming fear of draughts and the sensation of a draught, even when there is not any, to this category of neuroses.

The following are some of the most clearly pronounced cases of minor neuroses.

1. A third-year medical student could not stand the sight of wounds or blood during surgical operations. He almost fainted at the sight of them and therefore nearly had to leave the medical institute.

Four sessions of suggestion during suggested sleep freed him entirely of these reactions. The patient got well and finished the medical institute.

2. Patient N., 52 years old, suffered from an obsessive fear of darkness: she was afraid of a dark room, which under the conditions in which she lived constituted a serious hardship. This phobia developed and persisted all through her life as a result of her father's trying to dispel her childish fear by forcing her to bring him his cigarettes from a dark room. This created a trigger point in the form of overwhelming fear of a dark room—a fear persisting all through her life.

The phobia was eliminated by two sessions of psychotherapy administered during the patient's suggested sleep.

3. Patient K., 40 years old, suffered from a compulsive protrusion of the tongue, which made her appear as if she were licking something. Her behaviour showed no other aberration. Pharmacology and exercises aimed at preventing the compulsive movements of the tongue were unsuccessful and forced her to give up teaching.

Psychotherapy was administered during suggested sleep. The patient proved very suggestible; two sessions completely eliminated the compulsion and enabled her to resume her teaching.

4. An 8-year-old girl had been suffering from a compulsive sucking of her lower lip since the age of 4. According to her parents' observations, her lip had grown out of proportion and sometimes showed excoriation. The child's grandfather had suffered from this compulsion ever since he

had been a child; owing to this his lower lip was badly deformed. Fearing a similar deformation in their daughter, the parents applied to the dispensary.

Several sessions of suggestion during suggested sleep eliminated the compulsion. The same compulsive state recurred 2 years later in connection with an attack of influenza. Psychotherapy in the form of sessions of suggestion in a drowse did away with the neurotic lip-sucking. Subsequent observations over a period of 4 years showed no relapses; all the other neurotic phenomena also disappeared. She does well in a general educational and in a special music school (observation by M. Kashpur).

5. Patient N., 20 years old, had a panic fear of thunderstorms. According to her parents (her father is a physician), thunderstorms drove her to distraction. The patient proved very suggestible. One session of suggestion was conducted and the following suggestion was made: "You are no longer afraid of thunderstorms and they do not disturb you." The treatment removed the pathological phenomenon. Subsequently, as we were told by herself and her husband, she never suffered a single relapse for a period of 28 years.

Certain more complicated functional disorders may also be classified with the minor neuroses. The following may serve as an example.

Patient M., 52 years old, applied to a psychoneurological dispensary with a complaint of being unable for some time to endure his upper denture. His case history revealed that once, while making a very important report, the patient felt nauseous—a feeling he attributed to his new denture. The resulting excitement forced him to cut his report considerably. Subsequently, his nausea continued, seriously disturbing him, especially during his public appearances (his work was connected with frequent public speaking). Soon the feeling of nausea began to arise not only while he had his denture in his mouth, but also at the time he was putting it into his mouth. Moreover, by the time the patient applied to the dispensary it was enough to bring the denture close to his mouth to provoke nausea, violent peristalsis of the entire intestinal tract, contraction of the abdominal muscles, and an overwhelming desire to vomit.

Treatment in the form of several sessions of motivated suggestions during suggested sleep produced no effect. Upon awakening, the patient no sooner managed to bring the denture close to his mouth than he experienced his violent symptoms again. We then made use of the following method. While the patient was in a state of suggested sleep, he was told to put his denture in. However, the first attempts, repeated several times, brought no results, and it was only towards the end of the session that the reactions accompanying the intention to put the denture in grew much weaker.

These exercises were repeated during the following session towards the end of which the patient managed to put the denture in for a short time. Numerous repetitions of these exercises over a period of four sessions completely rid the patient of his former reactions. During the following four sessions, the obtained effect was consolidated. As a result, all the aforementioned phenomena disappeared, the patient easily put the denture into his mouth without any trouble, kept it in, and returned to his usual

work. A positive catamnesis was traced for a period of 4 months (observation by N. Zelensky).

The so-called allergies and idiosyncrasies—inability to tolerate certain foods and drugs which cause urticarial reactions—must also be classified with the minor neuroses. Thus, one of the patients under our observation reacted to quinine by developing facial oedema; another patient could not tolerate strawberries, developing an urticarial rash after eating them. Both these patients developed a normal tolerance for these substances under the influence of but one session of suggestion in a drowsy state. We once chanced to observe the elimination of anaphylactic nettle-rash accompanied by a tormenting itch through suggestion during suggested sleep (K. Platonov, 1925).

A. Kartamyshev (1942) observed a 41-year-old patient who developed an itching rash all over the body, 4 hours and then 2 hours after taking plasmoquin; during each course of anti-malaria treatment this rash had to be treated by morphine injections. Sessions of suggestion during suggested sleep were subsequently conducted with one such session proving enough to remove the aforesaid complication. Similar verbal influence succeeded in removing similar reactions resulting from use of neosalvarsan. A. Kartamyshev naturally concluded that allergic dermatoses should not be regarded as a nosological entity since they could be provoked by various factors.

The following are some of the most complicated neurotic states we have observed; their analysis may contribute to the understanding of the conditions under which they develop, reveal the underlying pathophysiological mechanisms and determine the methods of therapeutic influence required in these cases. These observations show, with particular clarity, the positive significance of psychotherapy administered precisely during suggested sleep.

NEUROSES WITH COMPLICATED CLINICAL SYNDROMES AND METHODS OF PSYCHOTHERAPY

The extent to which psychotherapy during suggested sleep may be effective is shown in the following example rare in its extraordinary severity and complexity with respect to its aetiology and clinical manifestations.

1. Patient S., 24 years old, applied to us in June 1924 with complaints of constant anxiety and depression, heightened irritability, general debility, extreme emaciation, disturbed sleep and nightmares (she fell asleep only towards morning when the "city was awakening"). She was mainly disturbed, however, by a series of obsessive fears.

These overwhelming fears and compulsions forced the patient to live the "life of a hermit" and she became a "total invalid," whereas before her ailment she had been syntonic and sthenic. She was eager to recover and irritated at the futility of treatment.

Her ailment began in 1918 after a series of long-continued distressing experiences during the Civil War, these experiences predetermining the

content of her phobias which had formed and had become fixed as cortical trigger points or as temporary pathological bonds.

The following is the story told by the patient concerning the aetiological factors and conditions under which the intricate complex of phobias formed; it was checked by hypnoanalysis and revealed the picture of the psychic trauma she had sustained. We shall now consider her complaints in greater detail.

a) *Fear of walking outdoors alone* (open spaces in general). Long distances frighten her and she can therefore walk away from home alone only for a short distance. If she ventures to walk a little farther she is gripped by overwhelming fear, everything goes dark before her eyes, she develops palpitation, begins to tremble all over and "her legs give away under her." She can therefore walk longer distances only in the company of her husband.

b) *Fear of crowds.* When surrounded by a crowd, she is overcome by unconquerable fear and fights her way out. She does not go out into the street when, for some reason or other, there are many people there. Avoids crowds when she goes to town with her husband and for this reason never goes to the cinema, the theatre, or meetings. Is afraid of riding tram-cars because she "may not be able to get out of the car."

c) *Fear of enclosed places with locked doors.* The patient grows very anxious upon learning that the door of her room or the exit from the apartment is locked. This anxiety develops into an overwhelming terror and a state of extreme motor excitement. Under these circumstances she rushes to the door screaming and tries to open it at all costs. Wherever she may be (for example, visiting with her friends or neighbours), she is always anxious about the exit. Even if there are people in the room, the uppermost thought in her mind is about the door, and she is constantly worried whether the door is open. "What if the door is locked!" "I watch the door like a wild beast watches its prey," the patient says. If she knows that the door is open, but sees a key in the keyhole, an obsessive thought comes to her mind, "What if they lock it!" or "What if the key gets stuck and they will not be able to open the door," and she may not be able to leave the room. She is haunted by another obsessive thought, "How can I escape? How can I get out into the street?" Her attention is immediately directed towards another door (if there is one) or towards a window. She must invariably check on how high the window is from the ground and if she can jump out without hurting herself and flee for her life. If it is winter, she wants to make sure that the window can be opened, etc. She is therefore always worried when she is in somebody else's house. There were times when, unable to contain herself, the patient noisily opened the locked door sometimes breaking the lock (if the door did not yield after several trials). But upon reaching the street, she immediately regained her composure. This activity makes it necessary to keep the door in her room always ajar, to warn the apartment neighbours about the common exit and about keeping the door that leads from the corridor on to the staircase unlocked so that the patient may be aware that the exit is not obstructed. The outer door of her apartment is closed by a special latch which can be easily undone. All outer hooks and bolts have been removed.

d) *Fear of twilight, darkness and nocturnal silence* (especially in the street and in her own apartment). At nightfall the patient succumbs to anxiety, develops noises in her head, dizziness, chills, and becomes fidgety. She jumps out of bed (if it happens at night), wakes her husband or the neighbours, if her husband is away, and falls asleep only at daybreak.

e) *Fear of travelling by rail.* "The doors in the carriages are locked," "there are many people," and the obsessive thought, "What if the train stops far from the station, somewhere in the field!" haunts her. In the train, she experiences overwhelming anxiety, the blood rushes to her head ("the head is in a vice"), she develops palpitation, etc.

f) *Fear of being unable to undress quickly,* especially to unlace and take off her shoes; while doing this, she is always excited, grows more and more impatient and is seized with an overwhelming feeling of fear.

All of the aforesaid has compelled the patient to stay indoors and to take no part in social life for the last 5 years. It has "transformed her life into a distressing and tormenting existence; she is of no use to herself or anybody else and is a burden to her husband," who "found himself chained to her by force of circumstances" because only his presence relatively reassures her. She is constantly anxious, depressed and irritable, cries often, sleeps poorly and has nightmares. Always stays indoors doing limited housework. All these years she had been treated in polyclinics and by many physicians. However, neither pharmacotherapy nor electro- or hydrotherapy have brought any relief, the patient's health growing steadily worse.

Being very active by nature she suffers greatly from her morbid helplessness. The idea that there is no hope of recovery drives her to desperation. According to her husband, she attempted suicide during one of her attacks.

She was referred for psychotherapy. Escorted by her husband she came to us in a seriously depressed and anxious state. During the first interview, we learned with difficulty of her main affection, part of the information being furnished by her husband since the patient reacted so strongly to certain events in her life that it was impossible to dwell on them; besides, the patient herself asked us not to touch upon these memories. Only after her recovery, after a detailed anamnesis were we finally able to disclose the mechanism by which each of her phobias had developed.

Anamnesis. She is the daughter of a rural school-teacher, has no pathological heredity and is physically well developed. She was energetic, sociable and sthenic, and when need be acted with great daring. At the same time she has been timid since childhood (as a result of being frightened by stories of mermaids, wood-goblins, and sleep-walkers), but as time wore on, the timidity diminished.

We shall now consider the episodes which conditioned the development of the neurotic symptoms.

At the age of 13 (in 1913) on her way to gather mushrooms in the woods she had to cross a field. Inadvertently she wandered into a thicket, was frightened by something, was gripped by terror, took to her heels and ran "stricken dumb with fear." She was still frightened when she reached the field, her fear increasing as she traversed half the distance on her way

home and gradually decreased as she neared home. To allay her fear, she bit her thumb to the point of bleeding.

At the end of 1914, in connection with the war, she moved along with other refugees to Yekaterinoslav (now Dniepropetrovsk), was accidentally separated from her parents, and went to work as a factory hand. Despite being all alone, the hard living conditions and her youth (she was 15 years old) she always made her own way without any help, staunchly overcoming all obstacles and difficulties. In 1917 she rejoined her parents whom she found in Izyum.

At the end of 1917 (during the rule of Petlyura and the hetmanship), she joined the revolutionaries and escaped capture and execution by hiding in the woods. In July 1918, at the age of 18, she was attacked by a *gang* of Petlyuraites. In November 1918, she *suffered a railway accident*: she was pinned against the wall of a carriage and was extricated through a window. Under the impression of the terrible picture of the wreck she "took to flight, following her nose." She was frightened once more when she found herself *in a field all alone* and was particularly awed by the *"sinister silence."* Later, she worked hard, awaiting the coming of the Red Army.

In the beginning of 1919, she was persecuted by the White Guards. Fearing possible arrest, she changed her residence frequently. After the coming of the Red Army, and inspired by the struggle, she served fearlessly on an armoured car. One day she found herself in a desperate situation: she was all alone with very important documents in a city occupied by the enemy. They were still shooting in the streets. Walking alone through *deserted streets* she was seized with terror, but managed to find cover. Since she was already being shadowed and attempts to arrest her were made, she fled with a false passport to her relatives 100 kilometres away. She rode at night, alone in a carriage. Fearing arrest, she abandoned the carriage before reaching the station and hid in the forest awaiting day-break. She came to her relatives in the morning and spent the day in anxiety and the night in fear: "they may arrest me any moment, I must run and hide somewhere."

The following day she was arrested and locked up in a room all alone. She spent a sleepless night planning her escape. Early in the morning, the police sergeant attempted to rape her, but she resisted desperately. Saying, "Then you will rot in prison," he left the room and locked the door again. She was seized with terror and desperation, afraid she would really rot. A scene from Gorky's "Mother" came to her mind. She was soon released on bail and stayed at home, afraid to go out into the street. She felt some-what reassured near a window through which *"she could escape, just in case."*

Late at night, several days later she was arrested again. Staunchly endured all the insults during the questioning. Was sentenced to running the gauntlet, but a few days later, the Red Army approaching, was sentenced to be shot. Along with others she was taken out to be executed at *twilight*. Terror-stricken and desperate she rode *across a field*. After spending three days in a death cell, she was transferred for the night to the apartment of the commander of the punitive detachment and was *locked* in a room in which there were hand-grenades and other weapons. Threatening punishment if she resisted, the commander demanded that she

give herself to him. In resisting, she *broke the window in order to escape through it.* The struggle weakened her and she was raped. She was brought unconscious to a hospital from which she was taken again several days later for execution. But the guard helped her escape through the window. She told us excitedly how she *was unlacing her shoes in order to take them off for her escape.* Awaiting the coming of the Red Army, she hid for two days with her friends.

The enemy began to retreat. The city was plunged in darkness and a *"horrible silence settled"* over it. When she came out into the street and did not know where to go, she was "gripped by a terror of loneliness." Red Army scouts came in the morning. Upon meeting one of them, she rushed to him shouting, "I am safe," and fainted. Was administered first aid by Red Army medical personnel.

When order was restored, a search for executed relatives began. *In a field,* 2 kilometres from town, she found the corpse of her executed father. As the corpses were sorted out, a cry suddenly went up, "The Whites are advancing, run to the city!" Perturbed because of her inability to cover the *long distance and cross the surrounding field where she could not hide,* she felt her legs give way under her and thought she was going mad. She fainted and does not remember how she was brought to the city. For some time the patient was in a twilight state suffering from psychogenic hallucinations and illusions which reflected her experiences. She was in such a state that the local physicians told her relatives she was hopeless. A young guerilla, her present husband, took it upon himself to look after her.

All the aforementioned phobias began to emerge as the acute neurotic state and certain grave symptoms (twilight state, hallucinations) receded. Owing to these phobias she lived the life of a hermit, a burden both to herself and to her husband; her constant fears resulted in emaciation.

Psychotherapy in the form of suggestions during suggested sleep was instituted in June 1924. Calm, forgetfulness of the past and of the fear, confidence in recovery, faith in herself, efficiency, and sound nocturnal sleep were suggested. A radical improvement in her general condition was observed after the very first session conducted with the patient in a drowsy state. The subsequent sessions were followed by long (one hour) suggested rest. Her condition steadily improved. After the 10th session her condition improved to such an extent that she became self-dependent: walked outdoors freely day and night, rode tram-cars, was no longer afraid of crowds, etc. After the 25th session she began to feel "very good": she regained her interest in life, was no longer afraid of closed doors, twilight, nocturnal silence and from time to time went to a motion-picture theatre. In November of the same year she went to work.

She finally decided to travel by rail to her mother's; the trip went smoothly and she walked 5 kilometres across a field alone and imperturbed. She felt perfectly good; all her fears had disappeared. For a number of subsequent years, she did public work, was a member of the City Soviet, went to crowded meetings in the building of the City Soviet, and to theatres, inspected the countryside, walked by herself at any time of day and night, living a complex working and public life. The old phobias never recurred, despite the appearance of new troubles. The general neurotic

state developing from time to time (until 1934) was relieved by one or two sessions of suggestion with the patient in a drowse.

She was well and efficient from 1934 to 1946. During the Great Patriotic War, she served in the Army as a nurse and took part in forcing a crossing over the Dnieper River.

Only in 1947 did the patient apply to our dispensary again about a slight recurrence of some of her phobias, emerging against the background of the climacteric.

This patient, evidently belonging to the strong, well-balanced and mobile type of nervous system and to a special medium type, had been subjected to a series of repeated "difficult situations" which were extraordinarily taxing for her nervous system and attended by extreme emotional strain.

As a result, the chronic overstrain of the basic nervous processes had led to a derangement in the inhibitory process with a sharp drop in the positive tone of the cerebral cortex and a pathological predominance of the subcortex. An intricate complex of phobias, formed by the physiological mechanism of temporary bonds, arose on this basis. Some of the other symptoms of an obsessive-compulsive neurosis, which developed in a similar manner, were based on trigger points of the cerebral cortex with inertness of the stimulatory process. Hence our diagnosis: *obsessive-compulsive neurosis in the form of a polyphobia.*

Whereas before her ailment the patient could be considered to have a strong type of nervous system (judging by her behaviour during the Civil War), her nervous system was subsequently acutely weakened by serious psychic trauma. Nevertheless, the inborn properties of the strong nervous type were able to manifest themselves in the rapid and complete recovery as a result of psychotherapy. Many years later, during her climacteric, she suffered from a weakening of cortical processes which led to a sporadic recurrence of some of her phobias, though in an attenuated form.

The following is another example of a complicated neurosis.

2. In February 1932, patient B., 42 years old, was brought to us by her daughter with complaints of depression, pronounced apathy, total incapacity, excessive irascibility "to the point of distraction," general physical debility, continuous pains in the heart region, headaches and unpleasant sensations in the pelvic region. She was particularly troubled by insomnia, excessive sexual excitement and erotic dreams (every night). She was extremely depressed by the total futility of treatment and of the stubborn struggle against her condition, especially manifest since 1918 and continuously progressing despite her desire to recover "for the sake of her children and the Cause."

As a child she had been quiet, capable, a good pupil and, until 1908, well, cheerful, balanced, and energetic. Since 1905 (at the age of 15), she was engaged in underground revolutionary activity and being very active carried out important assignments fraught with great risks. Was arrested twice in 1907 and exiled to Siberia in 1908. At the Chelyabinsk prison she took part in a 5-day obstruction and hunger strike and in a scuffle with a guard received a blow with a rifle butt on her right ear and temple, which knocked her out. This was followed by depression lasting several months, increased nervousness, tearfulness, disturbed sleep, crying in her sleep, "nervous fits with convulsions," and frequent attacks of pain in the

area of the head injury. After serving her prison term she lived in exile, felt better, but retained a somewhat heightened nervousness. In addition to working in her special field, she strove hard to advance her education. In 1910, while still in exile, she married for love and lived with her husband for 5 years, but was never fully gratified sexually. One year after her marriage she gave birth to a son. She was arrested 2 months before confinement and spent the 2 months in prison. Two years later, she bore a daughter. From 1912 to 1916 she was relatively calm and but rarely had pains in the area of the head injury.

Her irritability increased in 1916 and may be accounted for by the hypersexuality and amoral life of her husband.

In 1918, she experienced the terror of the Yaroslavl counter-revolutionary uprising and conflagration, and later had to cope with the serious illness of her children. After the Yaroslavl events she left her husband and went with her two children to Siberia where she engaged in underground activity under difficult conditions and great strain. In 1919, she contracted typhus, typhoid fever, and lobar pneumonia. The trying conditions of work affected her health and (according to the patient) convulsive fits occurred from time to time as a reaction to her past and to the hard conditions of front-line life. In 1920-1921 she engaged in active social work in Siberia. This period in the patient's life is characterized by moderately heightened nervous excitability, moderate sexual feelings and infrequent reactive convulsive seizures. From 1921 to 1924 she worked in Zhitomir as a teacher in a home for defective children. In 1923 she wrote her memoires, an act which aggravated her neurotic state as a result of which her convulsive fits with loss of consciousness and her nightmares reproducing all her past experiences occurred more frequently. At the same time she had distressing erotic dreams conditioned by overtaxing sexual feelings which had manifested themselves since 1919, but were nevertheless usually suppressed without any particular effort. But this state of heightened sexual excitability, coupled with that of general excitability (with fits), developing for a period of a year made her a "burden to herself and to those around her." In 1924, she was treated (physiotherapy) for two and a half months at a sanatorium and was discharged slightly improved.

After her return from the sanatorium, she visited a physician for relief of her condition, seeking to restore her efficiency, but was given advice which served as a source of much psychic trauma: "Get married! Go to work! There is nothing else I can say or do!" She lost faith in medicine.

In 1925, she sustained another emotional blow—she lost important service documents. This gave rise to an intense affective fit, motor excitement for several hours and a twilight state of consciousness (according to the patient). Was placed in a psychiatric hospital where she spent several months (diagnosed as "hysterical psychosis"). Was discharged as well.

In 1928-1929, she worked in a factory producing cardboard articles, was irritable, unbalanced, irascible and "malicious." Her condition became particularly aggravated in 1929, when persistent stomach-aches appeared in addition to the above symptoms. The polyclinic diagnosed her condition as colitis, "floating kidney," and appendicitis. She underwent treatment at the Beryozovka Spa, but obtained no relief: the pains and the state of general heightened irritability and affect persisted.

In 1930-1931 she was employed as manager of a children's sanatorium. During those years, her sexual excitability was heightened, but she entered into no sexual relations and constantly fought against her feelings. She had sexual relations lasting for about a month in 1931, but obtained no moral gratification and broke these relations off. Her sexual excitement, relatively relieved, flared up again in the course of time; general irritability increased and nightmares recurred, the latter being not only of an erotic nature, but also reproducing her past experiences—prison, front lines, exile, etc. By the spring of 1932 her general condition had grown even worse: she became extremely unbalanced, emotional, and intolerable to those around her; she was nicknamed a "malicious hysteriac." The patient lost a good deal of her efficiency, was depressed and entertained thoughts of suicide as the only way out.

She was sent to Berdyansk (now Osipenko Health Resort), but felt very ill at ease there; until then she had managed to suppress her attacks of sexual excitement, but now the "struggle against herself" became a losing battle. As a result she manifested increasing general irritability, and "carefully concealed her condition from those around her." Her surroundings also aggravated her. A film depicting the Civil War and an evening of reminiscences by guerillas provoked a convulsive seizure with loss of consciousness. To this were added distressing experiences connected with the rude attitude of one of the physicians who considered her an "incurable and intolerable hysteriac." All this drove her to desperation and she attempted suicide.

She came back home depressed "without hopes of recovery." "Finding no way out of her intolerably distressing condition," her general nervousness, irritability, melancholy and irresistible erotism she attempted suicide (by hanging) but was saved in time by her daughter. After this event, she was brought to us.

The patient requested to be referred for psychotherapy to "rid herself of erotism, give her sleep and restore her efficiency." She emphasized this was "her last hope and the last attempt to be cured." She did not believe in medicine. She said the "physicians were as yet apparently unable to understand such patients and did not know how to approach or treat them."

Taking into consideration the patient's general condition, her lack of faith in recovery and in restoration of efficiency and, above all, her hypererotism and the insomnia connected with it, we found it necessary to create in the patient an optimistic mood and to remove the principal stimulating aetiological factor, i.e., the sexual factor. Within half an hour, we managed to induce a deep drowse in her during which the following suggestions were made: "You have forgotten your past, your sexual excitement no longer troubles you, at night you sleep soundly and undisturbed, you do not dream," etc. These suggestions were followed by a one-hour session of suggested rest with repeated suggestions: "You are now really resting after all your experiences." After the session, she went home considerably reassured and relieved.

Coming for the second session 2 days later, she said "she did not remember feeling so good as she had felt in the past 2 days." She was much calmer during the day, felt sexually excited in the evening, but over-

came the excitement by transferring her attention to something else and soon fell asleep, having one erotic dream during the night. She had a similar dream the following night, but without any of the concomitant sensations. The second session of psychotherapy with the subsequent suggested rest was conducted with the patient in deep sleep.

The 3rd session was conducted during suggested sleep the day after the 2nd session. In the interim, there had been no erotic thoughts during the day and no dreams at night; she had fallen asleep without visualizing any erotic pictures and had slept well for two nights. She was frightened during the day, but took it calmly. She felt rejuvenated. "I can say I have not felt this way for 20 years." She regained her interest in life and her urge to work. She observed that "it was the first time her heart did not ache," though she had had heart trouble for a long time. During the two subsequent nights, she had no dreams. She could not fall asleep at once, but slept well, had no erotic thoughts, was quite balanced, wanted to work, and was sexually composed. A week later she was able calmly to relate several episodes from her past, which had, in their time, acted as a source of great psychic trauma.

After another week, the patient, as she herself put it, "felt fine"; those around her were surprised at the change for the better; she began to sew, a thing which she had not been able to do since 1918. She was collected, "not malicious," slept soundly at night, and was sexually calm. She related her past experiences, "surprised at her calm attitude towards the sad memories connected with the past." In a conversation preceding the session one week later, she decided to tell us how her husband had taunted her sexually and was surprised herself at how calmly she related the story. She had trouble on her job, but took it calmly. Had an erotic dream at night, woke up, but immediately fell asleep again.

One month after the beginning of psychotherapy, she was sexually composed and had no dreams at night. According to a friend of hers who had known her since early youth and had lived with her before 1932, the patient "was reborn and had become as quiet and kind as she had been before 1908." Her daughter told us that "Mama had changed beyond recognition, had become entirely different; formerly the least trouble irritated her and provoked crying and fainting spells. It was all over now, she was perfectly composed and happy." During subsequent days, she felt good and worked in the retail trade. Despite the bustling and nervous work of a salesclerk, she was collected and composed; in dealing with customers she did not get nervous, though she had good reasons to. Her menses reappeared 2 months later, she felt no erotic excitement, was alert, well and in high spirits.

We limited the course of treatments to these 12 sessions of psychotherapy during suggested sleep in order, as the patient put it, to "return her to a sound working life and sexual composure."

One year after the beginning of treatment, she underwent treatment in the same Osipenko Sanatorium again. From there she sent us the following letter: "I have none of the former morbid symptoms, I am well and alert and have the sound sleep you suggested to me. The attending physician says that I 'in no way resemble the person I was before' " (this physician had previously observed the patient at the health resort). Positive catam-

nesis until 1950. During the Great Patriotic War, she was evacuated and did active social work there. She was presented at a conference of physicians (Fig. 84).

The foregoing case is interesting from the point of view of the complexity of the aetiological factors: mixed trauma—physical injury to the head together with a series of prolonged and distressing psychic trauma, as well as protracted and persistent overstrain of the inhibitory process. At the same time the patient's nervous system apparently belonged to the strong type. Thus, during the first years following her psychic trauma her efficiency was quickly restored and her striving to recover was strong and dominant. In addition, the results of psychotherapy were rapid and stable. The protracted overstrain of the inhibitory process in the sexual sphere resulted in a derangement. The picture of the derangement also included suicidal tendencies. The "violence of the subcortex" was thus the dominating factor. A not unimportant role was also played by iatrogenic factors conditioned by the physicians' total misunderstanding of the results of the protracted and repeated psychic trauma.

Since the tone of the patient's cerebral cortex was sharply reduced, she proved very suggestible. By virtue of this, our psychotherapeutic efforts produced a stable and positive effect. The patient grew calm, collected and efficient. Her menses recurred, their cessation having been caused by the neurotic state rather than by the climacteric (she was 42 years old), as physicians had previously believed.

The result of treatment was very firm, persisting for the subsequent 20 years. We diagnosed this case as a severe form of a prolonged reactive hysterical neurosis.

It will be noted that it was possible to get at the final anamnesis only after the first three sessions of suggestion during suggested sleep and the subsequent suggested deep nocturnal sleep when the patient's cortical dynamics had normalized.

The following is another case, also complicated in its aetiology and pathogenesis, as well as in its clinical symptoms.

3. Patient K., 29 years old, applied to us in November 1937. She was confined to bed as a result of her physical emaciation. She complained of excessive irritability, depression, general debility, extremely disturbed sleep, lack of appetite and pains in the epigastric region, especially after meals. She was sure she could not be cured, was depressed by constant distressing thoughts, her house and children were neglected. Sick for 6 years, all forms of treatment administered by internists being futile. Had been perfectly well and efficient, composed and energetic before then. Had a sound heredity, her grandfather and grandmother on her mother's side having lived to the age of 100.

Anamnesis (as told by her husband): before her ailment she was well, efficient and energetic. Six years previously she had had a difficult confinement with complications. For 2 months after confinement she had a stubborn case of eczema on the lower part of the abdomen and on the thighs, owing to which she had become extremely irritable. Two years later she gave birth to twins, again developing eczema after parturition, the ailment persisting for 4 months. Her irritability increased again. According to the patient, her husband and daughter (she lost no love on

the latter) "aggravated her particularly." Psychogenic vomiting began, apprehension and persistent anxious thoughts developed, and excessive fear of a third pregnancy arose. In view of this fear she avoided sexual relations, provoking conflicts with her husband. However, one year later she was pregnant again, but submitted to an abortion which was attended by profuse bleeding. Owing to her fear of a new pregnancy, she was in constant tears, excessively irritable and generally debilitated, not sleeping for 2 or 3 consecutive nights, or waking up frightened in the middle of the night with palpitations and covered with a cold sweat. She grew "forgetful," absent-minded, and tired easily; by the end of the year she was totally incapacitated, lapsed into an acute depression and hardly ate anything (was fed forcibly). Her husband and daughter began to irritate her even more. As time wore on, her condition grew increasingly worse. Polyalgias and psychogenic eczemas made their appearance, she developed excessive suggestibility and autosuggestibility to the point of showing signs of false pregnancy and painful tumour-like formations developed on the skin. Thus, one day she developed a painful haematoma on her arm after she had seen a cyclist sustain a serious injury to his arm. She reacted similarly after hearing about various diseases. Thus, when she found out her mother had a gastric ulcer, she also began to have pains in the epigastric region after meals. Deciding that "she, too, had a gastric ulcer," she stopped eating and almost starved. Then influenced by thoughts of a possible pregnancy she began to develop corresponding symptoms again (swelling of the mammary glands, increased pigmentation of the areolae, nausea, vomiting, and other manifestations of toxemia). Physicians diagnosed her condition as "severe hysteria requiring prolonged treatment and re-education."

The tone of the cerebral cortex of the patient, apparently belonging to the strong variant of the general weak, particularly artistic, type of nervous system, gradually weakened considerably, and a picture of a severe hysterical neurosis developed on the basis of a protracted overtaxing of the inhibitory process.

In analysing the reasons for the onset of her illness we ascertained the direct connection between her illness and the conflicts the patient had had with her husband. However, the reasons went deeper and were connected with matrimony and family life in general. The fact of the matter was that in devoting a lot of her time to scientific work the patient was far removed from the "petty interests" of family life and therefore thought that "motherhood would directly impede her scientific advancement." She married without any particular inclination and did not want any children. She was composed during the first 3 years of her married life, though somewhat on the alert as regards pregnancy—a situation which placed her under a certain psychic strain. Subsequently, however, her husband insisted on having children. Then came the "odious pregnancies," difficult confinements and subsequent surgical intervention. For her, all these factors turned out to be the extra-strong stimuli that conditioned the derangement of her higher nervous activity.

Thus the patient constantly lived in an atmosphere of a difficult clash between the antagonistic cortical processes: she inhibited her aspirations in an attempt to reconcile herself to the hated role of a "family woman."

Under these conditions "the only person to blame for her unsuccessful life" was her husband for whom the patient began to show an active dislike.

Considering the nature and structure of the given neurosis, we decided to institute psychotherapy during suggested sleep (without using any other remedies) with suggested rest following each session, especially since all attempts at reassurance and explanation made on the conscious level only irritated the patient. As was to be expected, the patient was very suggestible and rapidly lapsed into deep sleep at the very first attempt at hypnotization. During the session she was assured of recovery, restoration of efficiency, possibility of engaging in scientific research under the existing family conditions; a favourable attitude to her husband, children, etc., was suggested. In addition, we suggested calm nocturnal sleep, a good appetite and forgetfulness of her past experiences. A radical improvement was observed after the first session: the same day, for the first time in a long period, she had no pains after meals and slept well all night long. The entire syndrome disappeared after the subsequent 3 sessions. Positive catamnesis for 16 years: the patient was efficient, collected, as adequate as she had been before her ailment, worked fruitfully in her chosen field and *manifested no signs of hysteria at all.* Upon recovery she was presented twice at conferences of the Ukrainian Psychoneurological Institute. Diagnosis: situational reactive hysterical neurosis.

The foregoing case is interesting in that the nature of the clinical syndrome gave every reason for diagnosing constitutional hysteria, presumably conditioned in the patient by her extremely weak type of nervous system. But analysis of the past and, particularly, the rapid and lasting effect of hypnosuggestive therapy denoted that the given patient manifested a prolonged hysterical reaction sustained by an unfavourable family situation and therefore the illness had assumed a chronic character. By corresponding psychotherapy the *patient's attitude to this situation was changed*, resulting in the elimination of the entire pathological syndrome.

4. Patient S., 40 years old, complained of extreme irritability. When irritated she was unable to speak in a normal tone. The "more she was irritated the more she shouted," frequently to the point of frenzy and the loss of her voice. Upon regaining her composure, she "feels very much ashamed of her behaviour," "promises to guard against it in the future," but everything is repeated as soon as she is irritated again. She is in a continuous state of anxiety and fear. "I worry at the least provocation and without any reason." After worrying she wakes up at night at the slightest rustle (or the sound of steps outside her window) and begins to shout in an "odd voice," "Who is there?" or may simply scream, "ah-ah-ah!" (always 3 times). The more she is irritated, the louder she shouts. The patient observes that if somebody hurts her or something upsets her the thought of these events *does not leave her for a moment.* The impression of pleasant events, but even more so, of disagreeable events, may remain with her for a long time—up to a month or more.

Among the other clearly pronounced symptoms of sluggishness and inertness our attention is attracted by her *"keen feeling of the loss of a close relative"* persisting throughout her life, an *obsessive urge to save the dinner leavings* and, lastly, a *"fear of being frightened."* We shall now

consider in greater detail the causes contributing to the development of these symptoms and of their elimination by psychotherapy.

a) *Persistent keen feeling of the loss of a close relative.* Under lifelong impression of her mother's death. Orphan since early childhood. Lost her father when she was 1 year old and her mother when she was 4. Has keenly suffered the loss of her mother all her life and has been unable to utter the word "Mama" calmly even as an adult; "immediately breaks out in tears" and cries days on end. Was once presented at a scientific conference when she was 35; calmly related her phobias, but coming to the word "Mama" burst out crying and could not utter another word. Feels particularly heavy-hearted when she dreams of her mother; when this happens she cries for 3 days running. Playing funeral has been her favourite game since childhood; always bewails her mother when playing this game. As an adult, she persists in the belief that all her failures and misfortunes are due to the fact that she has no "Mama" and she therefore "sobs bitterly like a small child."

b) *Obsessive urge to save the dinner leavings* dictated by anxiety for the future. Her self-dependent life began during a difficult economic period, she was hungry all the time and was always afraid "lest she have even less food the next day." She always saves part of her food "just in any case, for tomorrow," and if she cooks porridge she leaves a little cereal in the package even if there is a small amount to start with; she treats sugar, bread and butter in the same way. She also leaves some cooked food, even if only a spoonful, in the pot. This food was, of course, wasted and everything thrown out because no one ever ate the left-overs. In this manner an obsession in the form of *anxiety for the future* became fixed. She is always worried about what will become of her "later," though reasons for these worries no longer exist. The anxiety for the future, developed in the past, keeps haunting her.

c) *Development of phobias.* One of the sources of her phobias was a story she heard as a child that a "man had hanged himself in the neighbouring forest and was now wandering through the houses attacking people asleep." A certain role was also played by the fact that she was frightened several times. She was frightened for the first time at the age of 17, when she was living in a large room of a hostel in which there were 25 beds, only 5 being occupied. Coming in once after midnight, the girls turned off the light and went to sleep. Suddenly somebody started yanking at the door of the room leading to the corridor. The girls heard the door unbolt. Someone came barefooted into the room, after which the footsteps died down and "dead silence settled over the room, so that there was not a sign of a living being." She decided that the new-comer was the "one who had hanged himself," that he "came up to the bed next to hers and would now come to her." Her "legs grew cold with terror, the cold creeping up to her breast." Her room-mate, sleeping in the adjacent bed, whispered to her, "Scream, there is someone in our room." "And I began screaming in a heart-rending voice," the patient said, "calling for my brother in the next room." It developed later that the footsteps they had heard belonged to someone who had walked through the corridor.

She was frightened the second time at the age of 21: coming to the hostel again after midnight when the light in the room was already turned

off, she heard a noise made by a chair; through force of habit she struck a match to see if there was anybody under the bed and saw a man's arm under the table. Frightened, she fell on the bed and began to scream hysterically, her screams changing to hysterical laughter and then to hysterical crying; she could not be calmed for a long time. It turned out to be a student who, aware of her timidity, had crawled under the table in order to frighten her.

From then on, her timidity took on pathological features and persisted for 19 years. If anybody approaches her from behind she screams hysterically, and the closer she is approached the louder she screams. Besides, she is afraid of being in a room alone and of going from one room to another. If she becomes excited she screams hysterically at the slightest rustle or physical contact and always screams 3 times. If she is asleep she continues to scream upon awakening because *"she cannot stop screaming of her own accord."* When her husband comes home he must therefore first make up his mind what he should do not to frighten her because, upon hearing his steps or voice, she screams. The lower his voice the louder she screams. If the patient hears a distant signal she is able to maintain her composure (paradoxality of relationship of forces). If she comes home when there is no one in she does not go to bed before she carefully inspects the premises. She does this every day. One night, the night-watchman passed by her windows, which sufficed for her to start screaming in fright upon hearing his steps in her sleep and, as usual, she was unable to stop until she screamed frenziedly 3 times.

If she is in the street alone in the evening, she is afraid to turn the corner of her house. If she is on her way home, the closer she comes to her door, the stronger fear grips her and then she no longer walks, but runs, yanks the door open and quickly shuts it behind her, being unable in these cases to bolt or lock the door because she trembles all over with fright, and her face shows extreme fear, since she is still under the impression that "someone is after her" (ultraparadoxical phase).

She was sometimes diagnosed as constitutional psychasthenia and sometimes as hysteria. According to the patient, she was diagnosed only once as suffering from "neurosis of fear."

Condition after psychotherapy. According to the patient, when she came out into the street after the first session of psychotherapy conducted during suggested sleep, she felt "rejuvenated." It was the first time she took an interest in her surroundings, her fear disappeared and she walked home quite calmly; when the landlady's daughter opened the door and the landlady walked into the half-darkened room from the balcony, the patient remained absolutely calm and "did not even start."

After two sessions she informed us that her little son "scarcely irritated her," and after subsequent sessions noted that for the first time in all of her conscious life she felt good and wide awake, like a sober person, that she acted, reasoned, and reacted perfectly soundly; she was in a cheerful mood.

A total of 7 sessions of psychotherapy was conducted during suggested sleep. Two years later she sent us the following letter: "Two years have elapsed since I was treated by suggestion and I no longer cry. One day I took offence at my husband and wanted to cry. But try as I did to recall the most pitiable and offensive things, I could not make myself cry, my

eyes were only moistened by tears and no more. My fears have almost entirely disappeared and there are no more involuntary hysterical screams. I am in a cheerful mood."

This patient showed pronounced inertness of the stimulatory process, her cerebral cortex apparently in a continuous phasic state ("mist of inhibition"). Various obsessive-compulsive states (collecting and saving food leavings, listening for rustles, hypaesthesia, fears) developed easily and became consolidated under these conditions. Psychotherapy administered during suggested sleep removed the pathological inertness, and the compulsion disappeared with it.

Diagnosis: obsessive-compulsive neurosis. The patient apparently belonged to the weak general, and particularly artistic, type of nervous system with pronounced pathological inertness of the cortical and subcortical dynamics.

5. Patient B., 48 years old. Under the influence of an unpleasant letter, she suddenly developed a bilateral amaurosis and mutism in May 1923. Suggestions were made during suggested sleep, sleep being induced by two stimuli—verbal and tactile (stroking the forehead). Deep sleep ensued immediately and speech was restored during sleep. We explained to the sleeper the connection between the cause (the letter she had received) and the effect (the resultant loss of speech and sight); she was reassured and "restoration of her vision and resumption of speech on awakening" were suggested. The post-hypnotic suggestion was effectuated but partly: speech and sight in the left eye were restored, but the right eye remained amaurotic. It turned out that the right-side amaurosis was of 4 years standing and did not yield to any treatment. After putting her to sleep again we asked her to "recall the circumstances preceding the loss of sight." We thus managed to ascertain the connection of the amaurosis with a raid of a gang of Petlyuraites.

The following suggestion was made: "It is all a matter of the past; there is no gang; you are composed; the blindness in the left eye has disappeared; after awakening you shall be able to see with both eyes." The suggestion was fully effectuated. The amaurosis in the right eye of 4 years' standing diagnosed by ophthalmologists as "retrobulbar neuritis" was also eliminated.

The binocular vision thus restored lasted for 2 years. It will be observed that before the suggestive interference she suffered from amaurosis very frequently, but the attacks were short-lived and ended spontaneously. Three years later we again observed a severe hysterical condition in the patient which she developed once more after a series of protracted distressing experiences.

After a sudden convulsive seizure and lethargy lasting three days she woke up deaf, dumb, and blind. Was completely severed from the surrounding world for several days. Could express her excitement concerning her condition only by pantomime and gesticulation. Showed no reaction to our presence, verbal address, and loud shouting into her ears. Her eyes were dull with dilated pupils and her gaze wandered from side to side. Reaction to touch and pin-prick was normal.

Since we were already familiar with the nature of her symptom complex we were certain of the direction and method of therapy. But, whereas

we had managed to remove an analogous symptom complex 3 years previously without difficulty, this time the physician was in an almost hopeless position: the total inhibition of the auditory analyser precluded the possibility of the use of the word as a conditioned stimulus (for the purpose of inducing a hypnotic state). Besides, treatment was impeded by the non-functioning of the visual analyser. These two circumstances made it impossible to concentrate the patient's attention on the physician and thus to create the optimal contact required for the formation of a zone of rapport.

Our plan to make use of the deep kinaesthetic sensitivity for the purpose of contact and recognition failed. We took her hand and passed it over our face several times, but this method provoked only a pantomime reaction of perplexity and denial. Tracing our name on paper passively with her hand evoked the same reaction. Despite all our efforts, we were unable to establish contact with the patient in order to influence her verbally.

But we had to find another way out. We believed that if a hypnotic state was but an inhibitory state produced by conditioned reflex means, the method of inducing sleep—by combined stimulation—tactile (stroking) and auditory (words), used with the patient in the past (3 years previously), would again evoke the same hypnotic state. Since a conditioned reflex elaborated in answer to the sum of two stimuli also obtains a response to each of the components taken separately (K. Platonov, 1912), we should be able to make use of only one of them, namely, the tactile stimulus (continued stroking of the forehead).

To be sure, after several strokes made in total silence, the patient began to grow calmer and in a few minutes fell asleep. Respiration became even and calm (14 times a minute instead of the former 18), the pulse decreased from 98 to 86, and a hypotonic state of the muscles set in—the limbs raised above the level of the bed fell back quickly and heavily, etc. There was no flexibilitas cerea and it was impossible to ascertain the state of the pupils because the eyeballs were turned up and in; it was possible only to obtain a weak reaction to considerably strong pin-pricks. The patient slept with an expression of perfect peace on her face.

However, the auditory analyser would not become disinhibited, though it was essential that this occur. We then decided to try another method —to produce tactile and pain stimulation of the pinna of the ears.

We began to stimulate the cutaneous surface of the ear in every possible way (pricking and pulling) until the patient responded with a pantomimic reaction. The auditory analyser was simultaneously excited by sound—shouting. We also attempted to influence the speech-motor analyser by patting her lips, pulling them forward, moving the corners of the mouth to the sides, lowering and raising the lower jaw, stimulating the tongue, etc.

Signs of the desired effect soon began to appear; gradually, with difficulty at first, but then more and more easily, we obtained answers to questions. We thus established contact with the sleeper's cerebral cortex through the disinhibited auditory analyser. Restoration of hearing (in sleep) enabled us to make a corresponding verbal suggestion concerning restoration after awakening of all the three analysers—auditory, speech-

motor and visual. The effect was but partial, however; upon awakening the patient was able to talk, but her hearing and vision were inhibited as before. The patient stated with growing anxiety and excitement that she "did not see or hear."

By stroking her head we induced sleep again. This time during suggested sleep, the activity of the auditory analyser was rapidly restored, and as long as she could hear and speak, we were able to have an anamnestic interview. However, we failed to obtain any information. The patient stated she was "tired of everything," "everything irritated her" and she was "tired of living." A deeper sleep and a *state of complete rest* were suggested. The following suggestion was then made: "You are fully rested and composed; when you wake up you will not only hear and speak, but will also see." The effect was incomplete again: hearing and speech were restored, but vision was not.

Sleep was induced again and the suggestion concerning restoration of vision (after awakening) was repeated. The effect was negative once more. Sleep was induced again and in order to determine the degree of inhibition of the visual zone of the cortex I made the following suggestion: "Open your eyes while you are asleep and you will be able to see me." The suggestion was fully effectuated—the patient saw only the physician. We then suggested: "Upon awakening, you shall see because your vision is intact." The patient woke up, but the effect was negative again. We induced sleep once more and suggested the ability to "see everything in the room." The suggestion was effectuated and, while asleep, the patient opened her eyes and named all the objects and her relatives present. The ability to see upon awakening was suggested.

The patient woke up stretching and yawning with gratification, but we ascertained at once that she could not see. We were in a difficult situation and decided to establish the direct connection between the disinhibited part of the visual analyser during sleep and its similar condition in the waking state. For this purpose we made the following suggestion during suggested sleep: "Upon awakening you will remember that during your sleep your vision was restored and you will therefore be able to see in the waking state." This time the effect was complete and the patient happily confirmed the return of her vision. No relapses were observed during the subsequent 5 years of observation.

The interest of the foregoing case consists in the fact that the pathological inertness of the inhibitory process had spread mainly over the cortical zones corresponding to the visual, auditory, and speech-motor analysers. The disease emerged during the climacteric and each "difficult situation," especially if it acted on the sphere of the second signal activity, resulted in a functional exclusion of one or several cortical analysers—visual, auditory or speech-motor—while the tactile and pain analysers were retained. These observations are also interesting as regards the methods of sleep induction and removal of the pathological symptoms. In the past the sleep inhibition no doubt developed in the patient according to the mechanism of temporary bonds with the combined conditioned stimulus (auditory and tactile). Her speech and hearing were restored with the aid of unconditioned stimuli (mechanical and sonic) and, after inhibition was weakened, also by conditioned stimuli (verbal). It was much

more difficult to remove the blindness. Vision was restored by the associative method, i.e., by establishing the connection between the functional state of the visual analyser during suggested sleep and the same state during waking. The words of suggestion—"after awakening *you will remember* that your vision functioned normally during sleep"—apparently played a decisive role. The conditioned bond between the act of seeing during suggested sleep and the cortical trace processes of the past normal activity of the visual analyser was thus coupled.

Man's visual and auditory analysers, containing the "sensory centres of speech," are, as is well known, most closely connected with the speech-motor analyser which represents, as it were, the "motor centre of speech." By their continuous interaction, the analysers of the cortex constitute the structural basis of the activity of the second signal system (A. Ivanov-Smolensky, 1952). It is therefore only natural that with a narrow concentration of protective inhibition it is specially delayed precisely in the most vulnerable sections of the cerebral cortex. Thus the phenomena of deaf-mutism emerge. According to Pavlov's teachings, the various symptoms are a characteristic feature of the hysterical syndromes; sharply increased affect, convulsive discharges, weakening of intellectual control over affective outbursts and taking to heart of distressing memories which traumatized the mind—all these find their explanation in the predominance of the subcortical functions over the cortical and of the first signal system over the second.

6. Patient B., 32 years old, came to us in April 1935 with the complaint of disorders of walking and standing: she was unable to stand or walk by herself, but could stand and walk by holding on to someone. She walked about her room by herself only by holding on to something and proceeding from one object to another, but was unable to walk through unoccupied space; she was similarly unable to stand without holding on to something or somebody. If an attempt was made to remove the support, the patient became greatly excited, developed palpitations, her face expressed terror and turned pale, her limbs grew cold, and she broke out in a sweat. As a result, she went out of the house only in the evening with one of the members of her family in order to hide her condition from strangers. During the day, she remained indoors and was limited in her movements. She had been sick two and a half years and had recently been put on the invalid list as a chronic case.

She was depressed. She felt well and wanted to work, but was doomed to inactivity because of her inability to move about by herself. "In view of her intolerable condition" and her lack of hope of recovery, she had, in recent months, persistent thoughts of suicide. Hospital and spa treatment brought no relief. The patient looked a picture of health. Before the onset of her illness she had always been well, alert, lively, cheerful, energetic and efficient. She had a healthy heredity.

An examination revealed no deviations from normal or any symptoms of organic lesions of the nervous system: muscular power and co-ordination of movements in the recumbent position were fully retained; there were no disturbances in sensitivity, and no signs of cerebellar lesions were observed. The entire syndrome amounted to a disorder of balance

while standing and walking together with a sharply pronounced emotion of fear.

Anamnesis (according to the patient, her husband and the information furnished by physicians who had observed her): on January 13, 1933, the patient was run down by a bus and was thrown to one side, hitting the nape of her neck and losing consciousness. Two or three days later she began to feel pains in the back of the neck and the occiput, and developed paraparesis of the upper extremities and paraplegia. On March 5, she was admitted to a clinic of nervous diseases where she stayed till August 1933. Objectively: cranial nerves normal, tendon reflexes slightly increased and somewhat more active on the left, no disorders of superficial sensation in the distal parts of the legs; slight disturbance in deep sensation in the toes. No pathological signs in the neuromuscular system. Urine normal. The patient was emotionally excited. Clinical diagnosis: slight haemorrhage in the cervical region of the spinal cord.

By the time the patient was discharged from the clinic, after 3 months, she began to move her arms and legs freely, but was unable to walk unassisted. She was afraid of falling. The neurological status showed no organic disorder and she was discharged with the diagnosis of "psychogenia."

We shall now consider the aetiology and pathogenesis of the foregoing disease making use of the information furnished by the patient. "In the fifth month of my illness, when I was already able to move my arms freely and my legs with difficulty while lying in bed, a physician from the social insurance came into the ward. He asked me how I felt and I began to show him how I moved my arms and slightly my legs and even showed him I could turn by myself. In response to this he waved his hand hopelessly, said I was being put on the invalid list and left. This horrified me. I was terror-stricken and lost all hope of recovery. The word 'invalid' and the idea of hopelessness, uselessness, a 'heavy burden to the family and those around me' literally shook me all over, and my condition changed much for the worse. An attempt to stand me up on my feet was made in July: two hospital attendants lifted me from my bed in the presence of a physician and wanted to stand me up on the floor, but my knees immediately gave way under me and I began to sink. The attendants started pulling me up, but I hung helplessly on their arms. I felt dizzy and the word 'invalid' flashed through my mind frightening me terribly. Whereas before the appearance of the physician from the social insurance, I wavered between faith and lack of faith in my recovery and in my chances for walking, at that moment I knew there was absolutely no hope and I really was an invalid. This initial attempt to stand on my feet ended in a long hysterical crying spell: everything was lost, my life and work. . . . I was a mother and a wife and I was duty bound to take care of my family . . . ."

Several attempts were subsequently made to assist the patient in walking, but it all came down to the fact that "when two hospital attendants held me up the third one had to move my legs for me with his hands." It was in this condition that the patient was brought home where she stayed for two months without any treatment. She was unable to sit up in bed by herself; someone had to assist her each time, put her legs down,

and only with the help of two people could she be brought to the table or out on to the balcony.

In September 1933, the patient was taken to Sochi where she took 18 Matsesta baths and by the end of the second month of treatment could walk with aid while leaning on a cane with the other hand. However, it was with a great deal of effort and "fear of falling." Upon returning home, she started to move about the room by holding on to the furniture. She began to be taken out into the street. Meeting her former co-workers and walking past the institution where she had worked were extremely unpleasant for her and made her cry.

The patient remained in this condition without any signs of improvement for a period of a year. Her second trip to Sochi in October 1934 failed to give her any relief. After a month's stay at the health resort she came back home in the same helpless state and without any hope of recovery. She continued to move about the room by holding on to the furniture or the walls. When physicians tried to leave her alone in the middle of the room, she "got dizzy, became excited, began trembling all over, grasping at people or things, etc., so as not to lose her balance." One day she tried to rise from a chair and walk through the room by herself without holding on to anything, but having risen to her feet, she "dropped to the floor," something that convinced her of the total hopelessness of her condition. It was the last attempt at independent walking. Since then she has been afraid to attempt it and her mental state has deteriorated.

The ineffectiveness of treatment drove the patient to desperation which was aggravated by the fact that she had been put on the invalid list. Moreover, when the patient and her husband asked the physicians to refer her for psychotherapy, they said, "Since there are changes in the cerebellum this method of treatment will be useless." "The only thing psychotherapy can give you is to remove your fear of automobiles," one of the physicians told her.

During the past year, the patient no longer applied for medical aid because the thought that her "cerebellum was impaired" deprived her of her last hope of a "possible cure by psychotherapy." Upon the insistence of her relatives, however, she decided to apply for psychotherapeutic aid; this was the patient's "last hope."

Diagnosis: obsessive-compulsive neurosis with stasibasiphobia. Two periods of psychotherapy were instituted, both on the conscious level and with the patient drowsing.

The aim of the first period was to instil in the patient faith in recovery. But reassurance, explanation and persuasion produced no effect on the patient in the waking state. Similarly unavailing were her attempts to stand or walk by herself, attempts which were very painful to her because of her highly developed fear. At the same time the patient was difficult to hypnotize; as a result, it was possible to induce sleep only after several sessions. During suggested sleep, she stood and walked about the room very easily by herself. We awakened her when she was standing in the middle of the room and persuaded her she could walk about the room by herself without any fear.

However, it was all in vain. The following suggestion was therefore made to the patient during suggested sleep: "Upon awakening *you shall remember* that while you were in a state of suggested sleep you stood and walked by yourself without any fear." The suggestion was effectuated fully, but not immediately, i.e., only after two sessions. Nevertheless, the patient was imbued with hope for recovery. The following post-hypnotic suggestion we once made, namely, "At night you will dream of walking by yourself and going shopping," also helped. The patient had such a dream the same night. In a subsequent chat we explained to her that her dream also testified to the possibility of normal walking. This completely persuaded her she could recover.

On subsequent days the suggestion was made to her during suggested sleep "systematically to practise at home standing and walking with the aid of her relatives"—something which she did faithfully. As a result, a month after the beginning of treatment she was able to walk unaided about her rooms and the yard without fear of falling. Within a month and a half she returned to full-time work.

The patient was very well for a period of 16 years, and then, in 1953, suffered a relapse of her former obsessive-compulsive neurosis of stasibasiphobia. This happened after a gallstone operation followed by complications. The patient spent 11 months in the hospital. After recovery, in addition to an unstable gait conditioned by general weakness, she also showed symptoms of stasibasiphobia with a clear reproduction of the traces of the accident she had been in. The relapse lasted two and a half months until she was admitted in 1954 to the department of neuroses of the Central Psychoneurological Hospital where psychotherapy was again administered together with training in independent walking. The result was positive. She was presented at medical conferences in 1935 and 1954.

The interest of the above observation consists in the fact that the patient was psychically traumatized by the social insurance physician who carelessly said she was being put on the invalid list. This created and fixed for a long time an isolated trigger point in the cerebral cortex. The patient apparently belonged to the strong well-balanced type of nervous system. Her nervous system was decidedly weakened by the physical and psychic trauma, especially since she had spent a long time in the hospital. The iatrogenic syndrome was conditioned precisely by the tone of the cerebral cortex which had been lowered protractedly by all of these factors. But the greatest psychic trauma was, of course, inflicted by the words of the social insurance physician.

The following are examples of neurotic ailments, the pathological symptoms of which belong almost exclusively to the sphere of activity of the second signal system.

7. Patient I., 34 years old, complained of an obsessive state appearing sporadically and interfering with her work. "I do not understand how a human being thinks and I keep wondering about it. Two forces are struggling within me: one compels me to think about it and the other not to think about it." It all started 16 years ago when a "malicious trick" was played on her: as she was coming home with her young husband after registering their marriage, an old woman, neighbour of hers, who was ill-disposed towards her, intended to run across the street ahead of her with

empty buckets. Noticing this, she and her husband hastened to walk ahead, the old woman failed to carry out her intention, and instead hurled several deprecating words at them. This strongly impressed the patient who was extremely superstitious and since then she has been afraid of the old woman and her daughters.

After this incident the patient developed headaches and "saw everything in a haze," all objects appearing to her "shrouded in a mist." Within a year these symptoms disappeared, but the patient began to have attacks of "oppressive" thoughts about "how a human being thinks." When these thoughts appeared, the patient, as she put it, "lost her ego" for some time, was unable to think consistently, sank into pessimism and lost control of herself. "My brain seems to be compressed by something." In addition, her "thinking becomes stunted," a feeling accompanied by such terrible headaches that the "brain is on fire" and there is such a loud noise and ringing in her ears that at times she cannot hear the words addressed to her.

There are also times when, upon entering the room, she does not know what to attend to and what to think about, and her thinking "suddenly becomes absolutely concrete: each word must take the shape of some real image because she is absolutely unable to think abstractly." Thus, for example, if she hears the word "good," she does not know what it means. According to the patient, "her brain functions, but her soul, if she may say so, is absent." She feels she is simultaneously normal and abnormal. "I am aware of it and it hurts me." However, she has not performed a single abnormal act.

Conditions under which the attacks occur: the attacks do not occur of themselves, but are always connected with recollections of the reasons for her ailment and are provoked, for example, by meeting a woman carrying empty buckets, or meeting the old woman or her relatives, or by recollections of the attacks, or by the word "crazy" spoken to her. In such cases the thoughts of "how do people think?" and "how must people be normal?" immediately occur to her. An internal struggle develops and she gets a headache. The attack ceases rapidly (of itself or as a result of this struggle) or may be prolonged. Sometimes she has no attacks for a whole year. During the 5 war years she had only 3 attacks: two short ones and one lasting a month. During the lucid periods between attacks she felt fine.

She has been sick since the age of 17. However, she was able to graduate from a pedagogical institute and to teach; she is now working as an accountant and taking an active part in social life.

Her heredity is healthy and she developed normally. During an attack her efficiency drops by almost 70 per cent. On those days she holds her head saying, "This is no life, but torture.... I am in constant fear of attack and have no confidence in recovery."

She relates the following incident: while having an attack in the public baths one day, she scalded her arm with water, the *obsessive thoughts immediately disappeared* so that she came home entirely free of them. After this the attacks did not recur for a long time (the result of a negative induction provoked by a strong focus of excitation). The patient notes that when she leaves her town the attacks cease. *On the whole she feels good outside this town and never has any attacks.*

We found that during the attacks she not infrequently showed dissociation in the activity of the signal systems, the first and second systems weakening alternately.

The patient herself describes it as follows: "I look at a lamp, but perceive it indifferently, coldly, as if something prevents me from perceiving it deeply.... I look at Chaikovsky's portrait and it does not mean anything to me, my perception of it is somehow limited, narrow, not extensive, and my *comprehension* of him is diffuse.... But when I am well, I look at the lamp and know what it means, understand what it is for, in a word, I perceive it in its full sense." At times, on the contrary, the functions of the patient's first signal system are considerably weakened. Thus, walking in the street she "does not feel her body, her figure," and it appears to her that *"only her thoughts are walking."* At this time she cannot imagine what her hair looks like, she looks at her clothes and does not know "whether they are hers," looks at her hand and does not understand whether it is her hand (picture of dissociation of the second signal system from the first). At such moments she "loses the sense of reality."

She observes that during the *first session* of psychotherapy conducted when she was in a drowsy state, she "felt her arms and legs were heavy, but could not open her eyes and her mind was a blank." It was suggested to the patient that "she forget the incident that happened the day of her marriage, that she feel good, that she hope for recovery" and that recollections and thoughts of the attacks "do not themselves cause these attacks." Upon awakening, as the patient herself put it, "her mind cleared up, her spirits rose and she could think clearly"; she had no headache. She feared "it would not last," however. Following the session the patient felt good all day long, the pains in the top of her head and the occiput were much weaker, and she was in a good mood. She had a clear idea of her surroundings. Towards evening, however, her "mind was clouded and her thinking dull again," although manifested in a weaker form. She notes that when she is well she always answers any question "fully, graphically and easily," whereas "last evening she answered with difficulty again."

During the *second session* she felt much more composed and was in a deeper drowse. Has the same sensations during attacks, namely, she "feels only her brain," perceives only her thinking and "has no sensation of her body" which is "somehow soluble." Upon awakening after the second session, she observed "she still felt her 'ego' but weakly and her thoughts somehow did not flow freely." The obsessive thoughts "about human thinking" and "how a human being understands everything" disappeared; she was again able to think abstractly. Remarks that if "every uttered word must normally provoke some definite image in the brain," "when words are uttered, *her brain cannot keep up with every word and elaborate a definite image or recollection* of what was at one time connected with it."

In this case the first signal processes lagged behind the second signal processes. On the whole, it was possible to speak of a pathological splitting of the concerted activity of both signal systems.

After seven sessions of psychotherapy the patient stated "she felt good." During the eighth session she slept deeply for one and a half hours. Felt much better than before the treatment. Went home after receiving a corresponding prophylactic suggestion. Her subsequent fate is unknown.

The following is another example of a stubborn second signal obsession which did not yield to psychotherapy.

8. Patient P., 24 years old, came to us with complaints of various obsessive ideas: if a cripple passes near by the thought immediately occurs to him: "I shall be like that." If he happens to be near a river, he feels he will either drown or be drowned. When he meets a funeral procession he thinks he will die; when he passes near a pole the idea comes to him, "My head will be as dense as this pole." "In general, whatever came in his way evoked dismal, negative thoughts." He cannot read because separate sentences also elicit negative thoughts. He must always reread the sentence several times and is reassured only if no negative thoughts occur to him (something which happens rarely). When he writes, he also entertains negative thoughts: "I shall die," "I shall be drowned," "I shall be imprisoned," "I shall change into a dog" (a cat, or some other animal). When one of these thoughts occurs while he is writing, he feels "this will not happen" if he erases the word that evoked this thought. He begins to erase and the more he erases the more he wants to erase and the more other obsessive thoughts occur. If he resists, in an attempt to fight the obsession, he *gets a headache,* becomes absent-minded and finds himself "in the power of these new thoughts" again.

A story of an unpleasant event immediately gives rise to the obsessive thought that "this will also happen to him." In such cases he makes a gesture "as though driving the thought away," but this gesture also becomes compulsive. The same thing is observed during meals: if he recalls an unpleasant event he must spit his food out (as though he "were spitting out the thought") and can thus bring himself to the point of vomiting. If, during some gesture made by another person, it occurs to him that he will die, drown, etc., another thought immediately comes to his mind that "since this gesture was made, these thoughts will come true," etc. The obsessive-compulsive state manifests itself always and everywhere—at work, when he is out for a walk and when he goes to bed. If he walks along the street he must come back to the place where a negative thought entered his mind and make several movements with his leg. This continues until he is covered with sweat and has a headache. Strangers notice his oddities and he thinks they laugh at him; he therefore always feels embarrassed. Of late, negative thoughts come to his mind even when he is not doing anything. As he travels by rail, he begins to think he "will be run over by the train" or "will be thrown under the train," etc. As he enters the carriage, he "must stumble over the footboard" and do it several times.

He sleeps well at night, but falls asleep and awakens with difficulty, and often has unpleasant dreams after which he is upset. If anybody looks at him seriously, he thinks this person either wants something from him or is pursuing him.

"For example, if I see a corpse somewhere I try not to come near the place, because I shall think that I will also be like that," etc. Another example: while buying a watch one day, he recalled the death of a soldier, and it immediately occurred to him that "the same thing will happen to me." He was seized with a compulsive desire to return the watch, but he could

not do it because he had already paid for it; this thought haunted him for about a year.

He asked us to rid him of these obsessions and compulsions which had begun two years previously while he was chewing some food, the number of such stimuli subsequently gradually increasing. At the present time, his compulsion is connected mainly with his gait which impels him to make various superfluous movements. A year ago he took treatments in Sochi and Baku, but to no avail. He was advised to "take himself in hand," "get married," etc.

Psychotherapy administered on the conscious level brought no relief; moreover, the patient proved unsuggestible.

This patient apparently had a reactive psychasthenic syndrome, though we failed to ascertain the affectogenic principle.

Thus, the first patient showed a picture of clearly pronounced pathological inertness of the coupling and analysing functions which manifested itself mainly in the sphere of second signal activity and was accompanied by phenomena of partial dissociation of the first signal dynamics from the second signal dynamics and an alternate weakening of each of them.

The second patient had a no less clearly pronounced pathological inertness of the stimulatory process which manifested itself in the second signal activity in the form of continuously emerging and alternating ever new obsessions. The activities aimed at their removal sometimes involved the kinaesthetic and sometimes the speech-motor analyser. In this case psychotherapy proved absolutely unsuccessful.

PSYCHOPROPHYLAXIS OF NEUROSES

The psychoprophylaxis of neuroses is based primarily on proper organization of work and rest and a system of measures aimed at preparing man's higher nervous activity for life's difficulties connected with considerable strain on the nervous system. This is particularly important for people with a weak or weakened type of nervous system.

The measures pertaining to mental hygiene and psychoprophylaxis must be built up on the basis of gradual and increasingly complicated training of the processes of higher nervous activity, beginning with the easiest and simplest tasks and passing to more complicated and difficult ones.

"Training for difficulties" and "educating the inhibitors" is a very important element in the formation of the child's higher nervous activity. This implies the training of the elementary acts of coupling and analysing activities (differentiation and generalization), reproductive activity of the brain (memory), positive and, especially, negative emotions, the cortical dynamic patterns (system, formation of habitual acts), etc. The necessity for this type of training exercises, carried out according to a definite and carefully elaborated system, is suggested by life itself. For children, the period of getting used to a new children's collective is not at all an indifferent one. After growing accustomed to one children's collective, to one group of teachers and nurses, the child takes separation from them very much to heart. Thus, simply the transfer of a child from a crèche to a kindergarten can inflict a "severe neuropsychic trauma." By this we imply

the breaking of a dynamic pattern for which the child was not prophylactically prepared. We believe that we need a *system* of continuous measures which prophylactically train the child's higher nervous activity in all its most important manifestations.

No less important is the prophylaxis during *puberty* when it is necessary to prepare the basic cortical processes for the qualitatively new system of relations connected with the physiological reorganizations of the endocrine-vegetative system inherent in this period. It will be remembered that during the changing period in the life of a young developing organism overtaxing and derangement of the higher nervous activity may occur very easily. A suitable system of preventive measures should avert the possibility of psychic trauma also at this period. We define this system of measures as preparation of the higher nervous activity for the possible functional variations in the endocrine-vegetative dynamics.

It should be emphasized that, with age, training should advance precisely along the path of *educating the emotions.* This task is all the more important since it serves as the source of a system of further directed acts which contribute to the formation of positive and the removal of negative traits in the human character.

The elaboration of concrete psychoprophylactic measures, as well as their practical application, is an enormously important social and psychohygienic problem. But in a socialist society, this problem can be solved despite all the attendant difficulties.

Psychoprophylactic measures for youth must provide for a proper organization of life and work and a systematic training of the higher nervous activity aimed at developing skills to overcome various extraordinary difficulties (extra-strong stimuli, overtaxing of mobility, break-up of dynamic patterns, etc.).

It will be noted that during the period of full sexual maturation and early married life the problem of preventing *sexual disorders* assumes its necessary and rightful importance. We believe the population must be properly informed how disorders and derangement of higher nervous activity may occur as a result of sexual dysfunctions since it is precisely sexual and erogenous neuroses that still play a prominent part in neurotic ailments which bring people to psychoneurological dispensaries.

Concretely, we can indicate, for example, the psychoprophylactic preparation for distressing news, e.g., the loss of a close relative, or another equally difficult experience. These also include the measures connected with the psychoprophylactic preparation of pregnant women for childbirth or the preparation of a patient for surgery, etc. These preparatory and preventive tactics make it possible to mobilize cortical activity in the requisite direction in due time.

Psychoprophylactic measures are particularly important for people with a *weakened* type of nervous system. Thus, if the nervous system of a person has been weakened (exhausted or traumatized) by unfavourable conditions it is especially necessary to safeguard it against harmful overstrains not only by the use of tonics, but also by carrying out a suitable training regimen.

One of the most important forms of influencing the state of man's higher nervous activity is the physician's word which stimulates and directs it,

and sometimes even helps to balance the basic cortical processes. This influence may take the form of concrete explanatory medical instructions (in confinement or before a surgical operation), corresponding general psychoprophylactic and hygienic-educational measures which need not, however, include an acquaintance with the *manifestations* of the various diseases. Otherwise, this "hygienic education" may easily result in iatrogeny—a frequently observed phenomenon.

Special attention must at the same time be devoted to *prophylaxis in daily life,* i.e., removing the unfavourable influence exerted on children by the quarrels of their parents, refraining from various forms of intimidation and maltreatment and influencing the mind of the child or adolescent by other harmful methods inherited from the past. These factors are a source of psychic trauma leading to the development of neurotic reactions or predisposing to their emergence at a later age.

We may cite the following observation by way of illustration.

A 63-year-old patient suffered all her life from a pathological fear (with actively pronounced vegetative reactions) of funeral processions and everything connected with funerals. For this reason, she even changed her occupation and always tried to live far away from a cemetery. It was ascertained that the disease was provoked only by the fact that at the age of 5 she had been frightened by a corpse.

Any form of intimidating children, like the frightful tales nurses tell their young charges usually before bedtime (or the frightening of younger children by the older ones), may in some cases lead to fixed (sometimes lifelong) neurotic states in the form of obsessive fears. The patient may easily forget the initial cause of this disease and subsequently tries to find the cause in something else, frequently putting the psychotherapist in an embarrassing position. Various forms of superstition may exert a similarly pernicious influence. The most decisive struggle must no doubt be waged by rational psychoprophylaxis against these forms of "psychotraumatism of everyday life."

Special attention must be devoted to the struggle against iatrogeny and didactogeny, i.e., the prophylaxis of diseases due to the improper behaviour of physicians with respect to patients or of teachers with respect to pupils. No less important is the problem of preventing overtaxation of the nervous system connected with such difficult periods as examinations in higher educational establishments.

CRITICISM OF FREUD'S TEACHINGS ON NEUROSES

The materialist teachings on higher nervous activity and the strictly physiological substantiation of the methods of psychotherapy have revealed the total inanity and fallacy of Freudian teachings on neuroses and, in particular, on the nature and mechanisms underlying the hysterical and obsessive-compulsive neuroses. The teachings of Freud and his followers (Adler, Stekel, et al.) not only failed to clarify the problem of neuroses and their psychotherapy, but also led to idealist misinterpretations.

What are the fallacies of the Freudian theory of neuroses?

To begin with, the very methodology of the Freudian theory, i.e., the source of formation of the personality within the personality itself is fallacious, because the scientific solution of this problem demands recognition of the fact that consciousness is a social product from the very outset.

According to Freud's theory, the primary source of neuroses lies in some "sphere of the unconscious" and the "sphere of instincts" in which the "sexual instinct" presumably plays an exclusive role. Sexuality, which Freud interprets in an extremely broad fashion as some general biological "principle of pleasure," as "pansexuality," forms the principal factor in the development of neurosis. He believes that the neurosis has its source in early childhood when a sexual attraction for the opposite sex in general emerges "instinctively," "unconsciously" (in the son for his mother and in the daughter for her father). This attraction sets the stage for the conflict, since it cannot be acted on. In this way, according to Freud, the sexual "maternal" and "paternal" (or "Oedipus") complexes are formed. Freud thinks that the conflict arising on this basis provokes the development of the neurotic symptoms. Since the "affective sexual tension finds no outlet," it is "displaced," breaking away from the idea with which it is connected ("theory of dissociation of affect"). Subsequently, during maturity, the displaced (ungratified) sexual tension "breaks through the 'censorship' into the consciousness" (this censorship exists in an undefined form and location). The sexual tension, having broken through, combines with some other idea and imparts the same sexual significance to it. This "break-through" occurs, according to Freud, in the form of obsessive-compulsive ideas, mainly fears ("inversion") or in the form of somatic symptoms of a hysterical neurosis ("conversion"). The neurosis developing during maturity is, according to Freud, an "actual neurosis," the deep-seated reason for which presumably lies not in the sphere of the external environmental factors but in the unsolved infantile sexual conflict.

Such symptoms as the obsessive-compulsive neurosis of fear (fear of contamination, infection, compulsive hand-washing, etc.) are, according to Freud, a symbol of "protection" or "purification" from the sexual contamination that has found no outlet. Compulsive vomiting is, according to this conception, a symbol of aversion for sexual experience which could find no outlet—that is the vomiting of pregnancy is a symbol of aversion toward pregnancy, while kleptomania is a symbol of gratification of the retained infantile sexual attraction. A hysterical convulsive seizure is assumed to symbolize the sexual act, while hypnosis is likewise considered a "symbol of a state of sexuality" similar to the passive state of a woman during the sexual act (Schilder), etc.

The psychoanalysts disclose the neurotic conflicts ("maternal" or "paternal" complexes) by analysing the patient's unconscious sphere over a period of many months and even years. They believe that recovery is possible after the release of the strangled affect into an actual neurosis which presumably cannot be cured otherwise. Thus, psychoanalysis is based on disclosing (with the aid of the patient) the sexual essence of the patient's neurosis in order to make him react subsequently, i.e., abreact in order consciously to "purify" himself from the "strangled" conflict. According

to this conception, all the symptoms—the neurotic manifestations of the obsessive-compulsive state, mainly the phobias of a hysteroid nature—are rooted in the sexual instinct.

From the very outset the Freudian theory of neurosis and the Freudian method of psychoanalysis met with severe criticism from many psychiatrists both in our country and abroad. In our country the first to oppose Freudian teachings on neuroses was V. Bekhterev (1911, 1922, 1929) who believed them to be not only practically and theoretically inadmissible, but also considered them detrimental to the patient who was forced by this method to fix his attention on sexual experiences and to visualize everything in terms of sex. "It will be noted," Bekhterev wrote (1929), "that this therapy unquestionably contains a harmful and even dangerous element which consists in continuous digging about by the physician in the sex experiences of the patient. This leads inevitably to concentration on a sphere to which both the physician and patient learn to attach exaggerated importance." Bekhterev emphasizes that the method of psychoanalysis "is characterized by its gread subjectivity which cannot be eliminated either in its first phase (during questioning of the patients), or in its second phase (during interpretation of the material so obtained)."

I. Pavlov also disapproved of Freud's teachings exceedingly. In the words of Y. Frolov (1949), one of Pavlov's pupils, Pavlov "resented the verbiage of the Freudians." In his reminiscences, Frolov cites Pavlov's conversation with a Freudian, in which the methods of the physiologists and of the Freudians were characterized by Pavlov as follows: "When I think of the Freudians and then of us physiologists today, I picture to myself two parties of miners who have begun driving a railway tunnel at the foot of a big mountain—the human mind. Freud has taken a downward course and has buried himself in the debris of the unconscious, while we have already reached the light and will some time come out in the open and finish the tunnel. We will finish it without fail."

Criticizing the concept of the unconscious, on which the entire Freudian theory is built, Pavlov (1927) said that "so important a cortical act as synthesis may be performed in those parts of the hemispheres which are, to a certain extent, inhibited by the influence of a strong stimulation prevailing in the cortex at the given moment. This act may not reach the consciousness at that moment, but the act was performed and, under favourable conditions, may come to mind in a ready-made form giving no hint as to how it occurred."[1] The total incompetence of the Freudian theory with respect to the predominance of "instincts" in the genesis of neurotic manifestations is underlined by Pavlov's following statement: ". . . although our life and that of animals is guided by the basic tendencies of the organism—alimentary, sexual, aggressive, exploratory, etc. (functions of the adjacent subcortex)—the perfect co-ordination and effectuation of all these tendencies (certainly inevitable under general conditions of living) are undertaken by a special part of the central nervous system wich moderates each individual tendency, co-ordinates them all and ensures their most beneficial effectuation in connection with the surrounding conditions

[1] I. Pavlov, *Lectures on the Work of the Cerebral Hemispheres*, 1927, p. 361.

of the external environment. This part is, of course, the cerebral hemispheres."[1]

Several typical clinical observations may serve to illustrate the means of ascertaining the concrete conditions under which compulsive states develop as well as the therapy used. We shall dwell in greater detail on one of the characteristic cases (cited above) of obsessive-compulsive neurosis in the form of *compulsive hand-washing.* How would a Freudian psychoanalyst consider this patient? How would he interpret the fear of contamination and the compulsive hand-washing? He would, no doubt, treat it all as an "unconscious substitution" for the "ungratified infantile sexual desire" and would strive, by innumerable sessions with the patient, to "make his way into the debris of the unconscious" in search for the "true" cause of the neurosis. But an analysis of the concrete environmental factors (family situation) and the pathophysiological mechanisms (temporary pathological bond and pathological inertness of the trigger sections of the cerebral cortex) based on Pavlov's teachings permitted a rapid disclosure of the nature of the neurosis and made it possible to effect a rapid cure.

Our observations confirm the correctness of the point made long since by Bekhterev (1911, 1929) that a certain number of neurotic compulsive states *do not represent inversions in the Freudian sense.* Our observations, substantiated by positive catamneses for many years, show that the content of these compulsive states is determined by various stimuli coming from the external environment and are not at all dictated by mere biological stimuli, as Freud's fallacious and absolutely inadmissible idealist conception avers.

We shall now cite other examples.

In 1934, a 24-year-old woman applied to the dispensary of the Ukrainian Psychoneurological Institute complaining of an irresistible urge to steal certain small household articles which she neither needed nor used. This urge to steal without any utilitarian motives (kleptomania) developed during childhood and has assumed the nature of a compulsion. In her struggle against this uncontrollable inclination she was forced to give up several jobs and to leave her husband (whom she loved and who loved her) since she was unable to confess her "vice" to him. According to the patient, she had a brother who was similarly afflicted.

The patient appeared very much depressed and stated she should surely commit suicide if she failed to rid herself of this "horror." An interview with her revealed that she came from a well-to-do family and grew up in comfortable circumstances and in an atmosphere of motherly love and solicitude. When she was 8 years old, her mother died and she was left to herself because her father "gave her neither love nor consideration." But the "situation," according to the patient, "became entirely unbearable" when her father remarried. From then on she missed motherly love even more, and it was particularly painful to her to see manifestations of love shown her friends by their parents. Sometimes she asked her stepmother to buy things she saw at her friends' houses. At first, her stepmother granted her requests and bought the things she asked for, but then stopped

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 376.

doing this. The patient began to lose heart, and the pity expressed for her and her brother by their nurse, who called them "orphans" contributed to her dejection. The patient and her brother started taking sweets and small articles—ribbons, kerchiefs, etc., secretly from their stepmother. The stepmother noticed this and began locking things up. This roused the indignation of the patient and her brother. At the age of 14 or 15, the patient was very fond of little trinkets and adornments her mother had given her, but the stepmother hid them. "I have things, but they won't give them to me," the patient complained. Later, she began to open the closets surreptitiously and under emotional stress and to take her things when she needed them. This led to conflicts with her stepmother.

At the age of 16, she left home, went to work at a tannery and lived in a hostel. It was here that her ungovernable urge to steal certain small articles manifested itself. It all started when she saw one of the women workers wearing a scarf just like the one her mother had had and, as the patient said, "some overwhelming force drove me to take the thing." She fought this urge for several days, then bought a similar scarf and somehow calmed down. But in the end she took the woman's scarf secretly just the same, hid it and only then "felt reassured." As the patient put it, she was attracted not by the thing, *but by the process of stealing.*

Since then, until she came to the dispensary, she had an unconquerable urge to take things that did not belong to her, although she waged a painful struggle against it; she attempted to take things from one of her hostel neighbours who resembled her stepmother, was irresistibly driven to take stockings with a Riga trade mark, as well as postcards and trinkets which reminded her of Riga where she had lived as a child. Seven years ago the patient enrolled in a secondary medical school and was successfully graduated from it several years later. She wanted to enrol in a medical institute but was in constant fear "lest she cover herself with shame by her behaviour" since she was not sure of her behaviour and "life with this vice was unbearable."

The origin and mechanism of the formation of her compulsive urge were explained to the patient and her anxiety for the future was relieved. Seven sessions of psychotherapy conducted with the patient in the waking and drowsy states removed the compulsion and the constant anxiety and fear for the future. The patient left in a cheerful and optimistic mood. Four months later she wrote and told us she "no longer suffered from her former urge and state of mind, and felt good" (observation by A. Matskevich).

In the foregoing case, analysis of the pathogenesis was not difficult: a distressing emotional state after her mother's death, a change in the family life and a sharp derangement of her pattern of life, i.e., the loving treatment of a mother who did not deny her daughter anything and the completely contrary behaviour of the stepmother. A sharp, emotionally coloured inner protest arose and the patient developed an urge to take secretly the things hidden by her stepmother. A passion for appropriating everything that was connected with her childhood and with Riga where she had lived as a child—all she lost when her stepmother appeared—developed and was consolidated. This led to the formation of an inert focus of stagnant excitation connected with a very definite group of stimuli and augmented by the keenly experienced emotion of protest. The patient thus

developed kleptomania, a situation which she resented intensely and which was effected impulsively under very definite conditions in the form of compulsive acts (partial, selective kleptomania).

This case confirms V. Bekhterev's indication (1922) that kleptomania is a fixed pathological combinative (conditioned) reflex elaborated under unfavourable social environmental conditions and that this ailment is not "inborn" or "incurable"—the usual psychiatric diagnosis of that time.

We would do well to recall Pavlov's words that "there are two ways of acting—rational acting" and "acting (perhaps directly through subcortical connections) under the influence of a tendency alone without preliminary control, i.e., acting according to affect, impulsively."[1]

The above patient suffered from an obsessive-compulsive neurosis whose pathophysiological basis was due to inertness of the stimulatory process confined to a definite section of the cerebral cortex, against the background of protracted asthenic emotion. It took the form a particular reaction to a situation which had assumed predominating and unjustified significance.

In this case the disease may be regarded as due to the activity of a specific point or region of the cerebral hemispheres. Under the influence of emotion (irradiation of excitation from the subcortex), this point assumed a dominating role. Under these conditions, with a weak cortex, this situation caused a strong, widespread negative induction which precluded control and influence by other parts of the hemispheres.

How would Freudian psychoanalysts interpret this case? They would, of course, discern a "break of the unreleased infantile sexual complex through the 'censorship' " which "led" to the onset of the "actual neurosis" whose removal required "purification" (by means of a so-called catharsis or prolonged psychoanalysis). But the compulsive urge can easily be removed by psychotherapy based on Pavlov's physiological teachings.

The same holds true for the observation of the patient with stasiphobia (see pp. 341-344).

The patient can neither stand nor walk by herself, but can only move with the help of another person or by holding on to something. In this manner she can walk several kilometres and even dance. If an attempt to withdraw her support is made the patient is immediately gripped with overwhelming horror, develops palpitation, breaks out in a sweat, grows pale, and her limbs turn cold. Under these circumstances the patient is doomed to inactivity although she feels quite well otherwise and wants to work. Pessimism about recovery has led to persistent suicidal thoughts. The patient was ill for two and a half years, though her heredity was normal and there were no symptoms of organic disease of the nervous system. She retained perfect co-ordination and muscular power tested in the recumbent position. The entire syndrome may be summed up as a disturbance of balance in standing and walking together with a strongly pronounced fear—"What if I fall!"

An advocate of psychoanalysis would say that this is a "sexual neurosis" whose roots are to be sought in infantile sexual trauma and whose "cure may be effected" in the course of a deep psychoanalysis.

[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals*. Medgiz Publishing House, 1951, p. 376.

But when we analysed the conditions under which this obsessive-compulsive neurosis had developed and ascertained the concrete cause (iatrogenic), we instituted combined psychotherapy and administered it according to a complex individualized method which completely eliminated the phobia.

We described these cases in detail intentionally, in order to show the fruitfulness of establishing the pathophysiological mechanisms and instituting treatment based on the clear principles of Pavlovian physiology rather than on Freudian fantasy. We have already described patients with obsessive-compulsive neuroses in a number of chapters; however, in these patients the role of the sexual factor in the genesis of the disease was excluded, but they all recovered without the aid of Freudian psychoanalysis.

An analysis of all the periods and stages of the patient's past not only obviates the necessity for the physician to "grope in the dark" (as is the case with the Freudians), but also makes it possible to salvage the patient from the serious consequences of Freudian psychoanalysis. We shall now cite three examples.

1. Patient K., 34 years old, came to us in 1927 with complaints of an uncommonly dreadful feeling of inferiority, loss of efficiency, work under compulsion, "unfamiliarity with and disregard for the complexities of life," an "infantile attitude toward life," physical debility, low psychic tone and a depression engendered by her "awareness of being unfit for life." The patient had been psychoanalysed in the past by a physician who had presumably discovered an "Oedipus complex." Psychoanalysis had lasted two years, but was followed by an aggravation rather than an improvement because, during psychoanalysis, it was explained to the patient that she was a "person with an infantile attitude to life" and a "wretched human being unfit for life"; she was also forbidden to marry. She was reassured that she would be well on reaching the age of 32. The words "wretched human being" haunted and depressed her till the age of 32. When she faced hardships, these words always recurred in her mind and she thought: "I am a wretched person, why struggle?" Consequently, she weakened in the fight. The promised age came and went, yet there was no improvement. She grew desperate and depressed, developing suicidal tendencies.

Detailed anamnestic interviews helped us to ascertain that the neurotic state had been caused by unfavourable family conditions and improper upbringing. We devoted our attention to these factors in the subsequent interviews which were of an explanatory and re-educational nature enhanced by verbal suggestions during suggested sleep. Three weeks of treatment produced favourable results: the catamnesis was positive for three and a half years. The patient was alert and efficient all through that period.

The patient's condition had been aggravated by the psychoanalyst's words which served as psychic trauma. The anamnestic interviews and pathogenetically correct therapy re-educated the patient and returned her to a life of useful work.

2. Patient S., 25 years old, has suffered from sexual impotence for 3 years; he was treated for eight months on a psychoanalytic basis, but

this treatment, as the patient put it, ended in an "even greater mental depression." We discovered the mechanism of a temporary pathological bond which had formed as an inhibitory conditioned reflex under the influence of fright during coitus. Six sessions of verbal suggestion were conducted with the patient in a drowsy state; during these sessions the patient was instructed to forget the fright he had experienced. The result was favourable: the patient's sexual life was satisfactorily adjusted.

Another patient, 32 years old, who for several months was treated unsuccessfully for sexual impotence by an advocate of psychoanalysis, was similarly cured after the real cause had been ascertained. He was treated in four sessions of verbal suggestion conducted during suggested sleep.

All of the foregoing shows that a simple and sound critical evaluation of daily observations conducted on neurotic patients militates against the "propositions" elaborated on the basis of the sexual factor by Freud and his followers—a factor presumed to be the only one in the origin of neuroses. It also militates against the "unconscious" as some sphere where neuroses originate.

Thus, his isolation from reality, his incorrect evaluation of the significance of social factors in the development of neuroses, his drawing of inferences on the basis of an entirely arbitrary interpretation of material of doubtful value, his insistence on the exclusive importance of the sexual instinct in the genesis of neuroses and, lastly, his maintaining that there is an obligatory connection between neurosis and infantile sexual psychic trauma—all these make Freud's conceptions absolutely inadmissible.

Nor can we accept Adler's idea which springs from Freudian teachings and is characterized by a re-evaluation of the significance of organic constitutional insufficiency as the primary source of development of neuroses. Thus, the conceptions of Freud and Adler are built on purely speculative ideas and on a prejudiced and completely erroneous approach to the patient.

Freud's idealist teachings are widespread in capitalist countries. It is a fact that Freudian psychoanalysis is especially prevalent in the U.S.A. today. Freud's conceptions have been used to good advantage by the bourgeois ideologists since they help to divert the people from a correct materialist understanding of psychic and social phenomena.

Moreover, Freud subsequently carried his ideas far beyond his original teachings on neuroses and even "sexualized" social phenomena. Thus, according to Freud, the infantile-libidinous tendencies, displaced and re-elaborated in the unconscious, presumably determine the life of all of mankind including the highest stages of human culture. Freud asserts, for example, that "aviation is of infantile-erotic origin" and that the "desire to fly," manifested in a dream, is nothing but a "passionate desire for sexual potency." Idealist isolation of man's higher nervous activity from the social environment is specific of all of Freud's teachings.

CHAPTER XX

ROLE OF PSYCHOTHERAPY IN VARIOUS BRANCHES OF THERAPEUTIC MEDICINE

> ...There are also mental medicines that heal the body.
>
> *M. Mudrov*

SUGGESTIVE INFLUENCE OF THERAPEUTIC MEASURES

Not only direct verbal influence, but also things in the external environment which have assumed the significance of conditioned stimuli can play the part of a suggestive factor in man's higher nervous activity.

One of our studies showed that a conditioned stimulus (rumbling caused by a sheet of iron) could put a patient to sleep, that he would sleep as long as the rumbling continued, and would awaken after the stimulus ceased to act.

This effect was conditioned by preliminary verbal suggestion.

It is precisely by the same physiological mechanisms and by the same method that a patient begins to be influenced in a definite manner not only by medicinal substances or therapeutic procedures, but also by all the specific stimuli of a hospital set-up against the background of which particular treatment is given.

That is why not only the treatment prescribed in a medical institution, but also the entire system of conditioned and unconditioned stimuli connected with the medical institution as a whole assume enormous importance for the patient. The entire pattern of the medical institution and the nature of the treatment contain features of a *latent* psychic influence designed to excite the patient's cortical dynamics to a struggle against his disease. And, contrariwise, if medical treatment is incorrectly administered, these influences may assume an entirely different, negative significance and lead to a still greater disorganization of the patient's cerebral cortex already weakened by his disease.

It is therefore entirely wrong to administer treatment without concomitant words which will have a therapeutic influence (in the form of explanations, reassurances, proper methods of persuasion or suggestion). But many physicians often completely overlook the important fact that the *success of any therapeutic influence is, to a certain degree, conditioned precisely by the action of the latent conditioned reflex element.* All

remedies without any exception affect the patient not only directly, i.e., through their physical and chemical properties (confirmed, for example, in experiments on animals), but also through concomitant verbal (oral or written) suggestions and instructions. This circumstance, therefore, must always be taken into account in the appraisal of any medicine, since the effect of indirect suggestion is at times much more powerful and thoroughgoing than is generally believed.

Consequently, if a physician does not realize the importance of the part played by the indirect influence exerted by some therapeutic method directly on the patient's cerebral cortex and through it, on the whole organism, he is *prone to go astray,* since the resultant therapeutic effect is actually largely determined by the action of direct or indirect suggestion.

To clear up these questions which are deeply rooted in the conditions of day-to-day clinical practice, we may refer, by way of example, to the comparison of the results in painless childbirth effected by two different methods—drugs and indirect suggestion.

K. Pronayeva conducted the following observations to ascertain the part played by psychic influence in the drug method.

She employed the drug method on 130 parturient women, making an intentionally formal approach. The drugs were administered without any preliminary psychic influence exerted on the patients, i.e., without explaining the purpose of the drugs, etc. The following results were obtained (according to a 5-point grading system): 5 in 7.6 per cent, 4 in 15 per cent, 3 in 31 per cent, and 0 in 46 per cent. The following table gives an almost equal number of cases in which indirect suggestion was used in addition to the drug method.

Table 6

Method	Number of cases	Results (in per cent)			
		5	4	3	0
Drugs	159	28	46	14	12
Indirect suggestion	197	28.4	29.4	24.4	18.8

These data hardly need any comments, they speak for themselves.

We shall cite another and no less interesting comparison.

A method of painless childbirth that was amazing in its efficacy, simplicity and ease of employment consisted of applying cupping-glasses to the Snegiryov-Head zones. This method was proposed at the Yerevan Congress of Obstetricians and Gynaecologists (September 1939). A comparison between painless childbirth resulting from indirect suggestion (197 women) and from applying cupping-glasses (143 women) yielded the following results (Table 7).

Table 7

Method of anaesthesia	Number of parturient women	Results (in per cent) graded by the 5-point system			
		5	4	3	0
Cupping-glasses	143	47.5	40.5	6.9	4.8
Indirect suggestion	197	33	28	24	15

We may suppose that two physiological mechanisms may have come into play here through the application of cupping-glasses to the hyperalgesic cutaneous areas sensitive to pain, namely: 1) negative induction produced by the foci of excitation of the cutaneous analyser resulting from stimulation by the cupping-glasses, and 2) conditioned reflex mechanism of the latent-acting indirect suggestion which, as Table 7 shows, accounts for about one-third of the resultant success.

That is why, for example, when we are told that "anaesthesia is a fine method, especially because parturient women yield to it with extraordinary ease and not infrequently fall asleep quite easily with 5 to 8 drops of chloroform and feel no pain" (K. Skrobansky, 1930), another idea occurs to us at once. Parturient women fall asleep with 5 to 8 drops of chloroform not because they are sensitive to it, but because these 5 to 8 drops are, in most cases, accompanied by soothing and sleep-inducing words. In addition, both verbal suggestion and autosuggestion come into play. It will be remembered that, as early as the nineteen eighties, Bernheim spoke of the suggestive effect of chloroform seen when patients fell fast asleep after two or three inhalations; subsequent moistening of the mask with some indifferent liquid was enough to maintain the "anaesthesia." We can assume that, in these cases, the more "anaesthetizing" words are used, the fewer the drops of ether or chloroform which will be required and the sooner they will take effect.

It will be noted that we have clinical, experimental and theoretical grounds for using the method of indirect suggestion for painless childbirth. Thus, our collaborator R. Shlifer observed (1924) how the consumption of half a glassful of plain water, given under the guise of "portwine" gave strength to a parturient woman and eased her labour. We have already mentioned above that by giving a patient fennel tea it was possible to terminate in the course of a few days a psychogenic polydipsia and polyuria of 12 years' standing. This patient had been hospitalized in a therapeutic clinic with a diagnosis of "diabetes insipidus."

It will be remembered that I. Postolnik (1927) was able to calm an excited parturient woman in protracted dry labour and to relieve her pains promptly by the use of a hydroclyster as an "anaesthetic." Later, psychiatrist Y. Kannabikh and internist V. Zelenin (1937) injected sterile water subcutaneously, calling it "thermoregulin," a drug which presumably raised the temperature of the body. In a number of patients, they observed that the body temperature actually did go up. Dermatologists A. Kartamyshev and N. Bezyuk, Bonjour, Grumach (1930), Bloch (1929), et al., removed warts using the method of indirect suggestion. Y. Zakamennaya removed warts during suggested sleep by moistening the warts with water, simultaneously using corresponding verbal suggestion; she obtained positive results in 10 of her 12 cases. Psychiatrist Bleuler observed a rise in body temperature in some tuberculous patients after water was injected under the guise of "tuberculin."

All this warrants the assumption that in its latent form suggestion is nearly always an accompaniment of any pharmaceutic therapeutic method and that this latent psychic factor, which acts according to the conditioned reflex mechanism, may impart therapeutic properties to indifferent substances or enhance (or weaken) the effect of "unconditioned" medicines.

We must also seek the possible reasons for the irregular effect caused by the same medicines used by different physicians (and even frequently by the same physician, but with the patient's cortical dynamics varying) in indirect verbal suggestion.

All this implies that in evaluating the advantages of any drug it is necessary to consider the factor of latent suggestive influence and to avoid labouring under the delusion that when this method (or drug) is used, "suggestion is excluded." At the same time we have seen that the administration of medicine in the absence of any psychotherapeutic influence exerted by the physician may diminish its efficacy. In addition to the day-to-day positive psychic influence exercised over the patient, we should like to emphasize the necessity of enhancing the efficacy of medicines and other remedies by corresponding verbal influences; it is precisely this influence that underlies the really competent approach to a patient which, in our day, must be considered obligatory for every physician.

The physician does not always give sufficient consideration to the part that can be played by suggestive influence when he uses a *new* medicinal preparation or method of treatment presumed to produce a miraculous therapeutic effect.

Cases of overestimating the therapeutic value of some medical measure are not infrequently due precisely to its *suggestive* effect on the patient (and to the special ritual by which, in individual cases, its use is attended).

This, in considerable measure, explains the formerly used and now completely abandoned metallo-, proteino-, and lactotherapies, etc., which have been employed in our time to treat most widely differing diseases by methods of blockade, autohaemotherapy, tissue therapy, introduction of small doses of novocaine, etc. In such cases it is often difficult to determine just what therapeutic effect (sometimes very quickly produced) is due to the action of the preparation, as such, and what is due to the patient's experiences. The drastically lowered tone of the patient's cerebral cortex, conditioned by the disease, "dependence on the physician," and heightened suggestibility must be especially taken into account.

It is necessary to consider the fact that every physician may encounter genuine *autosuggestion* in his practice, that he can only be fully insured against it if he knows (and always takes into account) that suggestibility is a property inherent in each patient and that the most diverse physiological and biochemical changes can occur in the patient's organism as a result of the suggestive influence.

That is why the motto, "to help means to heal"—the basis on which a novice (and sometimes not only a novice) in medicine builds his naive-realistic thinking—must be subjected to critical analysis. What is it actually that helps in the therapeutic process: the pill taken by the patient or the physician's words that accompany its administration?

In the pages of medical journals there are articles indicating that the criterion of the positive effect of tissue therapy is the "prolonged and total disappearance of pain," "diminution in pain and in the number of attacks," "change in the nature of the pain," and it may be "ascertained" that "in individual cases the pains ceased during the very first night following the

implants." Giving the method of tissue therapy its due, we have, nevertheless, no right to overlook the part inevitably played in this, as in any other therapeutic measure, by the second signal factor, i.e., latent suggestion.

ORGANIC DISEASES OF THE NERVOUS SYSTEM

Psychotherapy may be used in organic diseases of the nervous system:

1) in cases when somatogenic neurotic symptoms attend a disease;

2) in cases when there is a patient's psychogenic neurotic reaction to organic lesions of the nervous system;

3) for purposes of differential diagnosis between psychogenic and organic derangements.

In 1911, V. Bekhterev pointed out that "... in any organic disease of the nervous system disorders occur which are conditioned by attendant functional changes in adjacent or more remote sections of nervous tissue ..." and that "this permits a certain influence by hypnotic suggestion on the nervous affections of organic origin."

But the administration of psychotherapy in such cases must not be permitted to divert the attention of neuropathologists and, particularly, must not give any reason for erroneous diagnosis of the basic disease of the nervous system; in individual cases these neurotic phenomena are not infrequently discovered long before the appearance of organic symptoms and assume a neurasthenic, psychasthenic or hysterical character. These symptoms of neurosis which develop on the basis of an organic disease of the nervous system, i.e., somatically determined neurotic syndromes (so-called somatogenic neuroses), may lead even experienced neuropathologists astray. The diagnosis of organic disease of the nervous system is not infrequently made only during the subsequent development of the basic disease or only on the dissecting table. The latter occurs most frequently with brain tumours, an observation made by a number of authors (Thomas, 1903; Viegouroux, 1903, et al.) and also by us. Finally, it will be observed that closed skull traumas may be due to a *mixed* aetiological factor, i.e., physical and psychic trauma.

Of course, the emergence of such a somatogenic neurotic syndrome, which develops in a cerebral cortex weakened by the basic disease, more or less complicates the clinical picture of the basic nervous disease by creating additional pathological symptoms. It is but natural that in all these cases psychotherapy administered on the conscious level (with direct or indirect suggestion) and, especially, during suggested sleep may exert positive influence by removing the resultant disturbance of the cortical dynamics or by raising the tone of the cerebral cortex and instilling hope for recovery in the patient.

As to the patient's neurotic reaction to his organic nervous disease, it is most frequently prone to arise in persons with a more or less weak or weakened type of nervous system.

Our experience shows that in a number of cases psychotherapy can also eliminate or attenuate such phenomena as the tabetic gastric crisis provided the patient is very suggestible. Furthermore, there are cases in which

psychotherapy was effective in suggestible patients with incipient multiple sclerosis. In this manner it is possible to counteract for a period of time the dysfunction of the motor apparatus (paresis, paralysis, dysarthria, intention tremor, etc.). Our own observations and the data of other authors have affirmed these results.

The above may be illustrated by the studies conducted in 1953 by R. Yachmenik in the neurological department of Kharkov City Hospital No. 2. His data show that neurotic symptoms attending organic diseases of the central nervous system can actually be eliminated by verbal suggestion. In addition, direct psychogenic neurotic reactions to such diseases can also be eliminated. For example, suggestions were made to a patient during suggested sleep, which was followed by suggested rest, after a suitable anamnestic interview. Some degree of success was noted in infectious diseases of the central nervous system (10 patients), trauma to the skull (10 patients), hypertension with mild cerebral symptoms (5 patients).

As a result of psychotherapy, the emotional tension of the patients was released, the functional disorders attending the basic disease disappeared, appetite improved, sleep was restored and reactive neurotic symptoms were done away with. In this connection it is interesting to note that the basic disease also ran a milder course.

1. Patient T., 40 years old, was brought to the neurological department of the hospital with post-traumatic symptoms of contusion. She had sustained a head injury at the borderline area between the frontal and parietal lobes. In addition to organic symptoms, the patient showed tenderness to palpation of the trigeminal areas, a difference in the knee reflexes ($r > l$), an inconstant positive Babinski reflex on the right, symptoms of disturbance in the body scheme, constant tears, pronounced depression, insomnia, increased irritability and headaches. On closing her eyes, the patient visualized the person who had inflicted the injury.

Hypnosuggestive therapy was administered. The patient grew much calmer and regained her sleep directly after the first session. After the subsequent 5 sessions the depression was replaced by a noticeable cheerfulness, the patient acquired confidence in recovery and the pseudohallucinatory image disappeared. She accepted the residual postcontusional symptoms (headaches, dizziness) calmly. Has been under observation for one and a half years and is well.

2. Patient C., 28 years old, was brought to the hospital with acute infectious encephalitis which had developed precipitately with attacks of weakness and numbness in the left extremities. Objective findings: unequal palpebral fissures, central type paresis of the facial nerve, left spastic hemiparesis with a positive Babinski reflex. After a course of drug therapy the headaches and weakness in the left extremities disappeared. However, the patient retained her reactive neurotic state and was haunted by the obsessive thought that the "attack would recur somewhere in the street" and that she "would have to die" because her mother "had had a similar ailment and died in the street from the second attack." This obsessive thought haunted the patient all through her month's stay at the hospital.

Two sessions of verbal suggestion during suggested sleep conducted one week before discharge from the hospital changed the patient's mood. She

developed an appetite, regained her sound sleep and was discharged in good condition. Has been well for 4 years and is working successfully in industry despite the post-encephalitic residua in the form of a mild left hemiparesis.

It should be mentioned that in recent years P. Gershkovich (office of medical gymnastics of the Central Psychoneurological Hospital) has been administering corrective exercises during suggested sleep to treat new and old organic pareses and paralyses of various aetiologies.

Under the influence of suggestions, which impart to the patient a sense of well-being, confidence in his movements and faith in the success of the treatment it is possible to accelerate considerably the process of recovering movements in an injured extremity. In some cases, the suggestions are effectuated post-hypnotically, i.e., after the patient has awakened from suggested sleep. In individual cases, success was also obtained without sleep induction, i.e., with similar suggestions made on the conscious level.

Under these conditions hypnosuggestive therapy proved efficacious in a great many patients. By a series of sessions in "training exercises under hypnosis," it was actually possible to alleviate in this category of patients the paresis or paralysis and to hasten the re-establishment of movement. In other words, what could not be done on the conscious level was done by verbal suggestion during suggested sleep.

These facts confirm V. Bekhterev's statement made in 1911 that hypnotic suggestion in organic processes "sometimes falls on very fertile soil: this will, in all probability, be extended when more is known about hypnotic treatment."

As we have already observed, neuropathologists not infrequently deal with purely psychogenic ailments of the nervous system which they may often mistake for organic diseases. Observations conducted over a period of many years by us personally and by our collaborators indicate that neuropathologists sometimes diagnose "encephalitis," "diencephalitis," "neuroinfection," "arachnoiditis," etc., when the symptoms and syndromes are conditioned by purely functional derangements of the cortical and subcortical dynamics. These symptoms may be connected with the activity of various analysers, including the kinaesthetic (hyperkineses, paralyses), and with the vegetative nervous system. In these cases, even experienced neuropathologists frequently find themselves in some difficulty in trying to establish the diagnosis.

All these difficulties might easily be obviated if neuropathologists would systematically consider the part played by psychogenic factors, which, it should be noted, not infrequently entirely escape attention and are sometimes simply ignored. In such cases, an extended anamnestic interview may prove very important as an auxiliary diagnostic aid, especially if the interview is conducted during the patient's suggested sleep when the necessary answers to the questions asked by the physician can be quickly obtained. To illustrate this point, we may cite several examples.

1. Patient K., 28 years old, complained of a spastic wryneck of one year's duration; the patient's head was somewhat thrown back and turned to the extreme right (torticollis). It retained this position during sleep—a fact which warranted the physicians' conclusion that the ailment was organic.

The patient was incapacitated throughout the year, polyclinic treatment was unsuccessful, and she was placed on the invalid list. The condition had been caused by psychic trauma. She was undeservedly insulted while she was at work on a conveyer which required her to turn her head constantly to the right and somewhat to the back. When the psychic trauma was experienced her head was in just such a position and remained that way (Fig. 85).

The patient was referred for psychotherapy. Suggestion conducted while she was in a drowsy state gave her immediate and gradually increasing relief. Two weeks after the beginning of treatment the torticollis disap-

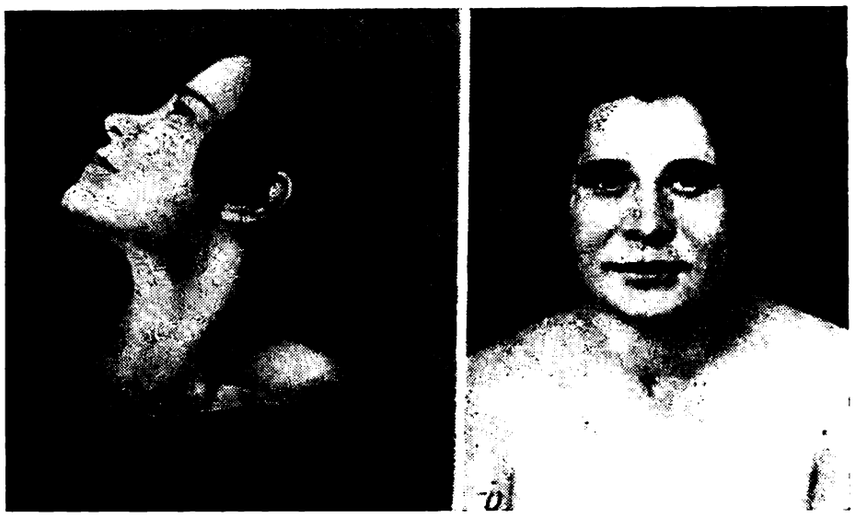

Fig. 85. Psychogenic torticollis before (*a*) and after (*b*) hypnosuggestive therapy.

peared, the patient was discharged and went to work. She was presented at a dispensary conference (observation by F. Tseikinskaya).

We have already described an analogous case (page 154) in which a spastic torticollis of 8 years' duration, similarly believed to have resulted from organic disease of the nervous system, was removed by two sessions of hypnosuggestive therapy. Both these observations deserve special attention because some textbooks on diseases of the nervous system do not mention the possible psychogenic origin or the efficacy of psychotherapy in this disease (see the manual of nervous diseases by Y. Sepp, M. Tsuker and Y. Shmidt, 1954). Besides, the chapter "Psychic Convulsions" in L. Darkshevich's textbook on nervous diseases (1914) even contains a direct indication that in such cases "we cannot recommend . . . the use of psychotherapy."

The positive effect achieved by psychotherapy in a case of wryneck was observed for the first time by Mohr as early as 1910. However, this failed to attract the attention it deserved from neuropathologists; owing to this, many of them are still inclined to regard any wryneck as an organic disease yielding to treatment only with great difficulty and with very little hope for success. This erroneous conclusion will inevitably be drawn by all those who overlook not only the possibility of psychogenia, which leads to the development in the cerebral cortex of a pathologically

inert focus of excitation lying in the zone of the kinaesthetic analyser, but also the possibility of removing this "trigger point" by psychotherapy.

The following are examples of more complicated disorders in the functions of the kinaesthetic analyser arising in the form of stereotyped compulsive, convulsive movements (tics). We shall begin with an observation already mentioned above (page 102).

2. Patient K., 23 years old, came to us with complaints of incessant nodding movements of the head (so-called "salaam convulsion") persisting for several weeks and not yielding to the usual treatment with bromides, iodine preparations and electrization. The involuntary contractions of the cervical muscles began after a fright experienced by the patient when she fell out of a tram-car. A peculiar hyperkinesis in the form of a nodding convulsion developed the same day. During the very first session of psychotherapy conducted with the patient in a state of suggested sleep, the movements began to slacken and during sleep ceased entirely. A verbal suggestion of a reassuring nature was made: "The fright you experienced when you fell is gone. You have calmed down, recollections of the fall do not worry you, the nodding has stopped and will not recur." The patient woke up, the nodding movements had disappeared and the result was lasting. We saw the patient 12 years later; the movements had never recurred.

These convulsions occur extraordinarily rarely. In this case they may be regarded as a fixed defensive reaction based on pathological inertness of a focus of excessively concentrated excitation formed in the kinaesthetic zone of the cerebral cortex.

The following are two cases of a more complicated hyperkinesis erroneously believed to have been organic diseases.

3. Patient A., 42 years old, came to us in 1930 complaining of a tic of the face, the neck and the left arm (*n. facialis et n. accessorii sin.*) from which she had suffered since early childhood. The ailment developed after a series of grave shocks: the death of her father and mother and subsequent radical lowering in her living standards. She was about 8 or 9 years old when people familiar with her noticed her ailment. Physio- and pharmacotherapy were of no avail. The condition was diagnosed as "degenerative neuropathy." The patient noted that handwork (embroidery) gave her some relief and a chance to "take herself in hand temporarily" but only for a very short time. Subsequently, she lost even this ability to alleviate her condition temporarily. During the war of 1914-1916 she underwent distressing experiences as a result of which her tics increased and were unrelieved by anything.

In the summer of 1928, the patient was in Yessentuki where she was treated for a liver ailment. At that time the twitchings "exasperated" her "completely"; the frequent twitchings gave rise to pain points in the neck; then came insomnia. She decided to resort to psychotherapy.

"I came to the hypnotic session altogether sick and heart-broken. This was my last hope." The result of this session "was amazing: the tic stopped, the pain points disappeared, my spirits rose and my sleep was restored." The tic recurred only after a great sorrow she experienced at the end of the following year, owing to which, in addition to the tic and

insomnia, she developed "crying spells which could in no way be relieved." She applied to another physician who treated her under hypnosis. He was able to help her. "After a session the crying spells ceased, and the tic discontinued, but this time only for a shorter period. Three months later, the tic recurred."

Two sessions of suggestion conducted by us during suggested sleep terminated the tic, restored normal nocturnal sleep and revived her cheerful mental state. The patient returned to work. But a grave illness followed by the death of a close relative caused her to lose her bearings again. However, the tic did not recur. Four years later she reported she had felt good all during that time.

4. Patient Y., 19 years old, was referred to the psychoneurological dispensary of the Donets Railway with a diagnosis of "encephalitis." He complained of constant twitchings of the body, mainly of the head, of 5 months' duration. The twitchings manifested themselves during conversation and excitement; beginning with the head and neck, they spread throughout the body and localized themselves on the left side of the body. They were single, localized twitchings, at first; then they changed to convulsive contractions of a tic-like nature, while the movements of the head and body assumed, as it were, a defensive character. During a conversation, the movements continuously changed in intensity, increasing considerably during excitement. Sometimes these forced movements ceased for a short period and the patient was quiet, though he maintained a strained posture as if awaiting new convulsive seizures.

An anamnestic interview revealed that the girl he had jilted had thrown some acid into his face out of jealousy. Part of the acid got into his left eye and his mouth. As a result, he was hospitalized. After discharge from the hospital, he developed forced movements of the head (throwing of the head to the side) and frequent blinking. After a series of excitements these phenomena began to grow worse. Influenced by this, the patient started consuming too much alcohol which further aggravated his condition. The forced movements now manifested themselves at night during sleep. Of late, the patient was not able even to sit up, could not eat and could hardly hold a spoon in his hand.

Somatically there were no deviations from the normal except for a compensated heart defect. There was no hereditary pathology. We assumed that the hyperkinesis was functional and was connected with psychic trauma.

Psychotherapy with motivated suggestions aimed at forgetting the experienced excitement was administered. The patient proved very suggestible; after the second session of psychotherapy his condition improved and after the third session the hyperkinesis disappeared. Four more sessions were conducted in order to consolidate the result. He left the dispensary in good condition. Positive catamnesis for 20 years with no relapses (observation by A. Breslav).

All these examples suggest the necessity of remembering the psychogenic form of hyperkinesis in which the disorders of the functions of the kinaesthetic analyser are quite amenable to psychotherapy.

It should, furthermore, be remembered that there is a group of neuroses whose chief manifestation is pain. This circumstance very often serves as

the source of diagnostic errors. Patients with various neuralgias, such as those with the painful component generally predominating, are, as a rule, referred to the neurological clinic because it is believed that this form of ailment is of an organic nature. It is not considered in these cases that neuralgias may also be psychogenic and may manifest themselves both monosymptomatically and as part of the symptom complex of a total psychogenic neurotic ailment.

In such cases psychotherapy is unquestionably indicated.

1. Patient S., 35 years old, came to us with the complaint that, after the death of her two children, she developed toothaches in all of her upper teeth, the aches spreading all over her face. Since pharmaco- and electrotherapy were unsuccessful all of her upper teeth were extracted. This did not help, however, because these pains continued, growing especially intense during excitement. This condition had gone on for 3 months.

Psychotherapy (with suggestions) was administered during suggested sleep. The following suggestion was made: "You must take the loss of your children calmly; you have already reconciled yourself to the idea, your pains have disappeared since they were conditioned by your distressing experiences." After three sessions of such suggestions, the entire pain syndrome was eliminated. The patient was under observation for 5 years (positive catamnesis).

We see that in this case the extraction of all the upper teeth was a direct result of the stomatologists' total disregard of the fact that her affection was based on psychogenia.

2. Patient T., 72 years old, came to us in 1933 complaining of continuous attacks of right-sided neuralgia of the trigeminal nerve from which she had suffered for 16 years. Electro- and pharmacotherapy had brought no relief. She had undergone treatment in a nervous disease clinic twice, her condition improving but slightly and then only for a short time. The soothing influence of heat and a total cessation of pain in the summer, especially when the patient was in the Crimea, was observed. Upon her return from the Crimea in the autumn, however, the pains recurred with their former intensity. It was only several years later that we accidentally learned from her daughter that the onset of her pain was connected with some distressing experiences she had had in 1917.

This justified instituting psychotherapy which produced a quick and positive effect; four sessions during suggested sleep eliminated the pains for 2 or 3 months. In subsequent years the patient again received temporary but necessary aid, whereas other therapeutic measures were without effect.

We feel that, had verbal suggestion been administered at the beginning of the ailment, a lasting effect could have been achieved.

3. Patient A., 28 years old, complained of neuralgia in all branches of the left trigeminal nerve. She observed that after 3 sessions of galvanization of the nerve her pains grew more intense, while blue light and heat gave her relief for only 1 or 2 hours. There were reasons to believe that the "pain came from a decayed tooth." In this connection the tooth was extracted but this also brought no relief. Examination of the patient revealed that she had suffered psychic trauma: all symptoms developed soon after she had learned from a pediatrist that her child had a heart

disease (acute endocarditis). The onset of her trigeminal neuralgia coincided with this event. Believing her neuralgia to be a reaction to the psychic trauma, we instituted psychotherapy in the form of motivated suggestion with the patient in a deep drowse. Her awakening was followed by considerable improvement. After the second session the neuralgia ceased and the patient developed a much calmer attitude to her child's illness. Two months later she paid us a visit and told us she felt good.

4. A 39-year-old patient came to us with complaints of headaches, insomnia, etc. Neuropathologists had diagnosed "left occipital and trigeminal neuritis" and "arachnoiditis." Regular treatment had failed. Since it was established that the patient had sustained a psychic trauma (her son's death), we conducted 5 sessions of psychotherapy during suggested sleep. "Composure" and "resignation to what had happened" were suggested to the patient, the suggestions leading to complete elimination of the syndrome. Positive catamnesis without relapse for 8 years.

It should be noted that some manuals on nervous diseases mention psychogenic neuralgias, but in practice neuropathologists usually overlook this circumstance; consequently, the only adequate psychotherapy from the pathogenic point of view, is, as a rule, not administered.

What physiological mechanism can possibly underlie the elimination of psychogenic neuralgias by psychotherapy?

Apparently, great importance should be attached to the elimination by suggestion of the underlying psychic trauma as the cause for the development of these pathological pain symptoms. Furthermore, it may be assumed that a no less important part is played by negative induction which "cleans up" the cortical trigger point located in the region of the "pain" analyser and connected with the innervation of the given section of the skin of the head.

The following are examples of diagnostic errors of another type which occur frequently.

1. Patient F., 19 years old, came to a dispensary, complaining of fear of losing her mind, crossing streets and squares, and leaving the house alone. When crossing a street or square, she experienced unpleasant sensations: "My brains were moving, my heart was palpitating, my chest was compressed, everything went dark before my eyes, my legs gave way under me, my whole body grew weak and I felt a tremor in my chest and stomach." At the same time she complained of headaches, poor sleep, poor appetite, and difficulties in concentrating her attention. The neuropathologist at the polyclinic diagnosed this case as "neuroinfection"; he forbade the patient to attend her institute and conducted a course of dehydration and deintoxication therapy, but without any success.

The real cause of the disease was as follows: Two months previously she had been awakened in the middle of the night by a loud knocking on her window. Still sleepy, she read a telegram informing her of a misfortune which had overtaken her brother. The patient was greatly frightened, her thoughts became confused, she felt her "brains began to move" and thought she was going mad. The aforementioned reactive neurotic syndrome developed from that time on.

The patient was infantile, undernourished, shy, timid and had an overanxious character, all of which warranted the assumption that she had a

weak type of nervous system. No pathological disturbances in her neurological status were discovered.

Twelve sessions of verbal suggestion were conducted, the first sessions with the patient in a deep drowse and the last ones during suggested sleep. After the first three sessions (in a deep drowse), the patient felt much better and her fear of going mad disappeared. After the subsequent sessions, the entire syndrome gradually began to disappear, the patient was cured, was able to attend her institute and passed her examinations with excellent grades (observation by M. Kashpur).

2. Patient T., 40 years old, was admitted to the neurological department of a hospital because of a "thoraco-lumbo-sacral polyfunicular neuralgia, sharply pronounced scoliosis, infectious form, third degree severity." She considered herself sick for 2 years and attributed the onset of her ailment to a "cold." Had taken treatment for radiculitis at the Slavyansk Health Resort where she received ultraviolet irradiation, paraffin applications and diathermy. These had afforded her but slight relief. Upon returning to her sister's family (her sister was a neuropathologist) she began to take an interest in medical books. Her attention was attracted by articles on radiculitis and spondylitis. Soon she began to discover in herself the symptoms she had read about in books, became totally inactive for fear she had spondylitis and stayed in bed for 2 years suffering from continuous acute lumbar pains.

Neurological status: severe emaciation, spontaneous and elicited pains (pain points, stretch symptoms) of the spinal root type, pronounced reflex-tonic symptoms (tension of the muscles of the back, scoliosis convex to the left, etc.), weak Lasègue's sign and sluggish Achilles reflexes. During her two months' stay in a hospital she was given a course of physiotherapy (pine oil baths and diathermy). Some improvement was noted, but the pains—spontaneous and those arising during examination—and the reflex-tonic symptoms with a forced position of the trunk persisted. The patient was bedridden.

We postulated that there was a stabilized pathological fixation of the pain syndrome and, after consultation with the psychoneurologist, transferred her to the department of neuroses for hypnosuggestive therapy. After eight sessions of suggestions conducted during suggested sleep, the spontaneous pains disappeared completely, the pains during examinations subsided considerably and the scoliosis was no longer evident. The patient began to walk unaided and was soon discharged in good condition, her muscular tension and antalgic scoliosis were no longer present. Periodic control examinations during the next three years showed that the pains had not recurred and the patient had been completely restored to normal (observation by K. Lavrova).

The patient showed neurotic manifestations against a background of considerable vegetative lability which was typical of her. Through reading medical books she had aggravated her neurotic state. Psychotherapy quickly and completely eliminated her scoliosis and spontaneous pains. Persistence of the pain syndrome (after the local process had ceased to operate) apparently had been conditioned by the presence of a focus of inert excitation in the cerebral cortex.

3. Patient P., 29 years old, complained of pains in the small of the back and the left leg, with difficulty in flexing or extending the latter, the entire left side of the body "becoming numb and freezing easily." He could not sit up and leaned to the left. During sleep he felt his throat was compressed ("hard to swallow"); when writing, his hands trembled; he also had dizzy spells. Had been sick for 2 years, being perfectly well until then. Connected his ailment with distressing experiences (sudden illness and death of his father, and difficult family straits). It was then that he developed acute pains in the small of the back. He was sent for treatment to Sochi where he recovered and his pains disappeared.

He felt fairly well throughout the following year, though at times he had pains in the small of the back. Towards the end of the year he received information that his younger brothers were in dire straits and he took his inability to help them very much to heart. The pains in the small of the back recurred and his temperature rose (to 38.9° C.); as a result, he was admitted to a hospital where he stayed a month with the diagnosis of "sciatica." Treated with diathermy and blue light. Discharged with the same pains in the small of the back and the left leg, but in addition, now manifests general irritability, anxiety, reduced efficiency, and tremor of the hands.

Objectively: reflexes actively increased, pain during palpation of the left ileosacral region, weakly positive Lasègue's sign and obvious hyperaesthesia on the entire left half of the body. He himself observed that he was no longer able to "tolerate reproofs received at work."

In view of the series of grave psychic trauma sustained by the patient, a session of psychotherapy was conducted on the conscious level. A calm attitude to life's hardships was suggested. The patient was somewhat relieved and grew calmer. After treatment he left for his summer practical work where he stayed a month, but the pains in the small of the back persisted in the mornings. Upon return from his practical work, he was referred for ambulatory treatment again; he was given diathermy, which only made him feel worse. He was hospitalized for another month, but obtained no relief. The pains in the leg increased to such an extent that he could not take his shoes off by himself and was able to sleep only on the right side. Diagnosis: subacute sciatica. Clearly pronounced Lasègue's sign. The Achilles and knee reflexes of both legs increased. The patient dragged his left leg with a stooping gait.

Since there were reasons to believe that the sciatica was emotional in origin, sessions of psychotherapy were instituted. Hypotaxia was easily induced. The verbal suggestions made in this state were aimed at eliminating the sciatica symptoms. After the first session the patient could slightly flex and extend his leg, but retained some pain in the aforesaid pain points. Massage and leg-stretching were recommended. The following day the patient stated that for the first time since he had taken sick he had "slept very well" and that he had been able to sleep on his painful side. The second session resulted in considerable improvement: the pains no longer troubled him, his efficiency was restored and he intended to resume his studies. After the third session he observed that he "now felt quite

well," was successfully pursuing his studies, was quite efficient at work and "neither the small of the back nor the leg gave him any trouble."

One month later he reported he felt well and was efficient at work. During that time he experienced a good deal of anxiety in connection with some important documents he had lost, ate poorly, had headaches, but still was rather well physically. Soon the documents were found and he quickly calmed down. The positive results of psychotherapy with this patient confirm the correctness of the assumption that his sciatica was psychogenic (observation by Y. Katkov).

In all of the above observations the diagnoses of "neuroinfection," "polyfuniculoneuralgia," "subacute sciatica," etc., did not correspond to the facts. The *neuropathologists overlooked the neurotic symptoms* (agoraphobia, autosuggested spondylitis, general irritability, anxious self-consciousness, etc.) conditioned by psychic trauma.

MENTAL DISEASES

For a long time Russian psychiatrists have devoted attention to the role of positive psychic influence on mental patients. S. Korsakov attached great importance to it in his time (1901), pointing out the necessity for daily concern and attention for the little things in the life of the mental patients, the expediency of talks with them, etc. He also mentioned the possibility of administering hypnosuggestive therapy in certain mental diseases. Thus, in his "Course of Psychiatry" he emphasized that this method was sometimes useful in certain forms of melancholia. "I happened to see cases," he said, "in which during the second half of the disease, marked by melancholy and pronounced delusions, the melancholy and delusions disappeared extraordinarily rapidly after the administration of hypnotic treatment." V. Bekhterev (1911) was of the same opinion. Besides, both Korsakov and Bekhterev attached particular importance to reassuring the patient, bolstering his spirits and to other measures using psychic influence on the patient by the physician.

In our time all this has become especially important in the light of Pavlov's teachings on a protective regimen necessary for the weak cortical cells of the mental patient. As Pavlov put it, "... simply the violation of his human rights of which the patient is aware and which consists partly in circumscribing his freedom and partly in slighting the patient and treating him as an irresponsible person"[1] cannot but constitute "a serious shock" to his weak cortical cells.

At the 1925 Leningrad Congress of Psychoneurologists, A. Gerver reported his success in administering hypnosuggestive therapy during the depressive phase of the manic-depressive psychosis, in involutional depressions with or without delusions. In these cases he was apparently dealing with psychogenic depressive states.

Of the foreign authors who employed hypnosuggestive therapy for mental patients, mention should be made of Voisin (1897), Kauffmann

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[1] I. Pavlov, *Twenty Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals.* Medgiz Publishing House, 1951, p. 329.

(1923), and Hollander (1923). The latter used this method for treating paranoiacs. Levy-Suhl (1922) describes a case in which it was possible to make a hebephrenic patient eat by means of corresponding verbal suggestion during suggested sleep.

The possibility of administering hypnosuggestive therapy to paranoiacs was mentioned by V. Bekhterev at the 1924 Leningrad Congress of Psychoneurologists. It is to be assumed, however, that hypnosuggestive therapy can hardly be administered during the delirium of true paranoiacs as well as in the paranoid form of schizophrenia because the delirium in paranoia often contains the idea of "hypnosis" and "hypnotizing" and the corroboration of this idea by suggestion during hypnotic sleep is not devoid of danger for the patient. The administration of psychotherapy in reactive paranoid states is quite a different thing. In such a case, as experience has shown, psychotherapy during suggested sleep may yield positive and lasting results.

In reactive psychoses, as shown by the examples cited below, the administration of suggestive therapy during suggested sleep, followed by suggested rest, may produce a sufficiently rapid and positive effect even under ambulatory conditions. Our observations warrant the assertion that this form of psychotherapy is likely to arrest the progress of the reactive psychotic state and even to terminate it at once.

It is necessary to mention the lasting and rapid effect of hypnosuggestive therapy in psychogenic delusional reactive depressions occurring at different age levels. It will be noted, incidentally, that psychiatrists sometimes erroneously diagnose the depressive-anxious delusional state of the paranoid type. Thus, there have been cases diagnosed as "pre-senile," "involutional" and "climacteric" psychoses, as a result of which the patients were placed in psychiatric hospitals, whereas a closer study of the conditions under which these states developed revealed their psychogenic reactive nature and predetermined the possibility of administering really quick and effective medical aid in the form of suggestive therapy during suggested sleep.

In some cases (examples are cited below) lengthy treatment in a psychiatric hospital undertaken without considering the psychogenesis of the disease produced no effect, while administration of hypnosuggestive therapy taking into account the factors serving as psychic trauma eliminated the entire syndrome and resulted in a permanent cure.

It should be observed, however, that administration of hypnosuggestive therapy in the psychiatric clinic is circumscribed, firstly, by the insuggestibility of most mental patients and, secondly, by the small number of psychoses amenable to treatment by verbal suggestion during hypnotic sleep.

The psychogenic reactive psychotic states, in which, as we have stated, hypnosuggestive therapy can be fruitfully administered under ambulatory and, sometimes, even under home conditions, form an exception.

The following are several observations.

1. A 35-year-old patient persisted in her delusions about poisoning and persecution and stubbornly refused to eat or associate with anybody. Since we knew the patient, who had had an hysterical hallucinosis 14 years previously and had at that time been under our care, we administered

suggestion during the patient's hypnotic sleep. One session sufficed immediately to clear up the delusions of one month's duration, while a conversation with the patient revealed the psychogenic nature of her disease. Despite pronounced emotional lability, the patient subsequently developed no delusions during the 5 years she was under our observation. She was efficient at work and socially active.

2. Patient V., 31 years old, was brought to us in a state of extreme depression and emaciation due to her stubborn refusal to eat and inability to sleep. The patient looked like a seriously ill old woman. She had fallen ill 2 months previously after the death of her only 5-year-old son. During his illness she had not left his bedside for 24 days and nights. Worries, sleepless nights and constant anxiety had undermined her health; her child's death was a tragedy and she reacted with derangements in consciousness, convulsions, screaming, etc. She had been in this state for 3 days. Psychic derangement and disorientation were also observed at the time of the funeral; after returning from the cemetery she stayed in bed for 4 days because of cardiac weakness, phenomena of asphyxia and cyanosis of the extremities. Was subsequently "irresponsible and had frequent attacks of disorientation." Went to the cemetery daily, but before reaching it fell down screaming and dug the ground with her hands. She refused to eat and food introduced forcibly failed to pass into the stomach (apparently because of throat or oesophageal spasm). Persistent insomnia, increasing debility and continuous suicidal thoughts and attempts at suicide. Medical and home care proved ineffective and the grave psychotic state progressed; as a result, it was decided to place the patient in a psychiatric hospital.

During examination of the patient we managed to establish contact with her and to put her in a drowsy state by verbal suggestion. We suggested to the patient general composure, a calm attitude to her son's death, sound nocturnal sleep, healthy appetite and an awakening of an interest in life. After the session the patient was given a 40-minute suggested rest.

She awakened in a radically changed condition: her face was reanimated, there was a bright look in her eyes and her carriage bore signs of cheerfulness. After leaving the polyclinic she reacted calmly to seeing children in the street. Upon return to the hotel she felt like eating for the first time and had breakfast with apparent gusto. "I felt a load came off my mind and the mist dispelled," she said when she came to us the next day. She now spoke calmly about her child, slept well at night, and was able to relate her experiences herself. Five more sessions were conducted (on alternate days) and the patient went back to her home-town in good condition. She was presented at a lecture at the Advanced Training Institute for Physicians. A month later she wrote and told us she was well and quite collected. Our diagnosis: severe depressive neurotic state caused by distressing psychic trauma (observation by V. Sher).

3. Patient K., 53 years old, was referred to a psychiatric hospital. He had the following delusional ideas: he was being "watched," he was in danger of being "framed," his house was presumably searched at night, he was to be arrested, he was already framed, he was a criminal, he "would rather not live any longer," etc. He was incapacitated, had a very poor appetite and could not sleep at night. This condition had lasted a week.

Heredity: his grandmother had had a psychosis and his sister a depression during which she had attempted suicide. Before his illness the patient had been collected, gentle, compliant, well-wishing, and always anxiously self-conscious. Objectively: considerable deafness, rigid radial and temporal blood vessels; tendon reflexes active, pupils equal and reacting actively.

The direct cause of the disease (according to the patient's wife): several weeks before he took sick at the plant, where he was working as foreman, one of the electricians subordinate to him had been arrested on suspicion of stealing electric supplies. This depressed the patient. The depression increased despite the fact that the electrician had been arrested by mistake and was soon released. Since then the patient slept poorly, was worried lest he himself be arrested and became irritable and unfit for work.

We had a reassuring and explanatory talk with the patient, making use of corresponding suggestion with the patient in a drowsy state. Half an hour of suggested rest followed. The session resulted in considerable improvement: the patient grew quieter, ate well, was able to talk on abstract subjects and slept soundly (10 hours on end) at night. But the anxiously depressed state and thoughts of arrest recurred the next day. He felt somewhat reassured, however, and no longer considered himself a criminal. After the third session he worked in his garden on his own initiative. A total of 5 sessions of hypnosuggestive therapy was conducted. Normal sleep was restored, the patient behaved properly and never gave voice to his former ideas again. The phenomena giving reason to suspect a pre-senile psychosis disappeared and were no longer observed. After recovery he returned to work at his plant and is still working there (almost 7 years).

Thus, a permanent and positive effect was produced in this patient. We should like to stress that the patient had a pathological heredity and clearly pronounced signs of arteriosclerosis (rigid arteries, diminished hearing, increased tendon reflexes).

Diagnosis: depressive neurotic state with delusional obsessive-compulsive ideas (weak general type of nervous system).

4. Patient S., 44 years old, came to the dispensary of the Ukrainian Psychoneurological Institute in 1928 with the complaint that since 1918 he had been excessively irritable, slept poorly and gradually developed various phobias, both stable and variable: he would sometimes be afraid of the tram-cars, sometimes of certain streets, sometimes of his wife and children, and sometimes of his students who attended his lectures. He sometimes left the lecture hall before finishing his lecture because he had an idea "the students would attack and kill him." Owing to this, "life had become unbearable" to him, he developed melancholia and unaccountable fear; his efficiency dropped sharply and he was forced to give up lecturing 4 months before coming to the dispensary.

He slept 2 to 3 hours a day, spending the preceding few nights in tears, "aiming to put an end to his life" because he "did not want to live."

A detailed anamnestic interview revealed a complex of unpleasant experiences. Five sessions of explanatory and reassuring suggestions with the patient in a drowsy state were conducted; these put the patient back on his feet and returned him to life. On coming to the third session, the patient stated: "What have you done to me?

I am perfectly well. I have become my former self again. I can walk through the streets calmly and today I decided to lecture without worrying. I am now what I was 10 years ago." Subsequently, he remained perfectly well and continued his work (observation by R. Shlifer).

In 1950, 22 years later, at the age of 66, he came to the dispensary again, this time complaining of "being relentlessly haunted by the image of the woman who shared his apartment," obsessive thoughts of her as of a being which had "some power over him," of a feeling of being "bewitched" by this woman, of anxiety and fear, inability to concentrate on anything, inefficiency at work, insomnia, a load on his chest and pressure pains in the region of the heart. During the examination, he was anxiously fussy and embarrassed, was difficult to understand because he flitted about from one unfinished subject to another, creating the impression of a broken-up associative process. According to him, he had taken sick 2 months previously because of psychic trauma (deception and robbery by this neighbour). After the treatment taken 22 years previously, he had been a responsible person able to cope with life's difficulties. He happened to spend a number of years away from home living in the mountains where he diligently painted all the specific features of the landscape and manifested great love for nature, staunchly enduring all hardships. The patient asserted he had always been unsociable, mistrustful, awkward and fussy in company, and impractical, but very industrious in life. He had no interests outside of his profession.

Three sessions of hypnosuggestive therapy were conducted; reassurance and recovery were suggested. After the first session he felt considerably relieved; after the third session the pains and unpleasant sensations in the chest, anxiety and obsessive thoughts and ideas disappeared, normal sleep was restored and efficiency regained. For a number of subsequent months, the patient was well and efficient at work (see page 251, example 3).

Our diagnosis: obsessive-compulsive neurosis of a paranoid type. The patient apparently belonged to the strong variant of the weak general and artistic particular type of nervous system (observation by M. Kashpur).

The following is a case of reactive paranoia which developed according to the physiological mechanism of autosuggestion.

5. Patient A., 37 years old, complains of a growing general indisposition, a sensation of "something indistinct and unpleasant inside, mainly in the abdominal region," sometimes of a feeling of contraction in her throat, anxiety, nervousness, inclination to tears, insomnia, "loss of the joy of living," incapacity, lack of appetite, fear of eating, fear of staying at home, a desire to go out into the street and wander around and, at the same time, an inability to do it because of a "sense of impotence." She says she is certain that "something emanates" from her dress, the objects and air in her apartment which "acts as a poison," that her husband "is spraying something poisonous" and that he intends to "kill her slowly." But "since it is too late" (she has become incurable), he has started treating her well and taking care of her, though he still "is spraying the poison." She feels sorry for her only child, but is "unable" to take care of him.

The patient is stout. No special deviations in the somatic or neurological status are observed. She is reserved; was brought to the physician by her husband almost by force; all the complaints and anamnestic data could be

obtained from the patient only after several interviews of many hours each. The patient's anamnesis may be summarized as follows: before she became ill she was self-confident, active, strong-willed, and very fond of her work; she travelled in the mountains annually in search of rare samples of plants necessary for her scientific endeavours. In her travels she was able to endure all hardships and deprivations. Engaged in teaching with equal readiness. She is attached to her husband, but considers herself on a higher level and worthier than he is and is convinced that he is "lucky to have married her." A year and a half ago one of her friends "opened her eyes" to the real state of affairs: it turned out that all through the 10 years of married life her husband continued to have intimate relations with a woman whom he had known intimately before his marriage. Jealousy, her husband's confessions, his repentance and assurances of love made her suffer keenly. Within a month she calmed down completely: "everything was forgotten" and she was indifferent to the other woman. A year later, however, she learned quite accidentally that her husband had continued his relations with the same woman and she "understood his pitiful position, his dependence on that woman and his weak will." This occurred before she was to have dinner. She felt humiliated, sat down at the table "almost mechanically" and after the very first swallow felt her chest compressed and something unpleasant in her stomach; it immediately occurred to her she was "poisoned." A general indisposition set in and she began to fear "her husband was poisoning her to get rid of her." This condition persisted, became fixed and was maintained "by the pitiful sight of her husband" and the fact that her rival lived in the same house as she did. This time the patient became sullen, made no more scenes and was (in her own words), as it were, fettered physically and mentally.

In the course of one month, she came to the dispensary 12 times. Long anamnestic interviews and sessions of hypnosuggestive therapy were conducted. The explanatory talks reassured the patient and she appreciated them particularly, believing them to be the "main remedy." There was no deep sleep, only a light drowse; deep sleep was induced only during the last two sessions. Within one month she was able to work, her anxiety disappeared and she showed no more ill-will towards her husband. She began to feel good, was cheerful, her indisposition disappeared and she was able to regard her former ideas about being poisoned critically. The indisposition recurred 2 years later in connection with trouble at work. Treatment was administered again and after one interview followed by suggested rest all the symptoms disappeared, she began to feel good and was able to work. Today she is well and is engaged in her former occupation. Diagnosis: reactive paranoia (observation by M. Kashpur).

6. Patient G., 28 years old, complains of anxiety and depression, refuses food and entertains paranoid ideas: she is in danger of being poisoned or killed; as a result, she is afraid of going out into the street and cannot sleep. She has been sick for 2 months since an appendectomy was performed on her under local anaesthesia. During the operation she felt a pain which gave rise to a severe fright. This was followed by days of excitement and hallucinations which gradually disappeared. These paranoid symptoms, however, persisted for a long time. Was treated unsuccessfully for 2 months. Regards her condition critically. Pleads that we help her get

rid of her melancholy, tears, fears and anxiety about her life. Has lost all hope of recovery.

Hypnosuggestive therapy was administered. The first session of motivated suggestion conducted with the patient in a drowsy state was followed by radical improvement. The entire complex of symptoms disappeared after the second session and "she became the same she had been before the operation." Was presented at the psychotherapeutic section of the Kharkov Medical Society. Was under observation for 3 weeks. Three years later she brought her daughter to the dispensary because of the latter's stuttering. She had felt good all that time (observation by N. Zelensky).

Thus we see that the timely discovery of the psychogenesis of psychotic syndromes not only contributes to rapid cure, but also serves as a valuable auxiliary differential diagnostic method. All the aforesaid indicates that psychotherapy must be recognized and employed in the psychiatric clinic, since in a number of cases it produces the necessary therapeutic effect. At any rate, certain psychotic states, especially the reactive states, should unquestionably be treated by psychotherapy.

Interesting and important are Perelmuter's studies (1949) of the problem of administering verbal suggestion in the psychiatric clinic under conditions of narcotic (hexonal) sleep—a method employed by him with a number of mental patients for purposes of symptomatic therapy.

Under conditions of hexonal sleep, a schizophrenic patient, who usually slept on the floor and was not amenable to any persuasion, was instructed to "sleep in bed." To a patient who refused to eat and was tube-fed, it was suggested that he eat by himself. The desire to work, read, etc., was suggested to inactive, languid patients; a change in behaviour was suggested to untidy patients, etc.

These suggestions were not only made in an imperative form, but were also accompanied by elements of explanatory therapy. It was suggested that to sleep on the floor was dirty, cold, etc. A temporary improvement was thus effected in some schizophrenic patients: two patients became tidy; those who had been tube-fed began to eat by themselves; those who had slept on the floor began to sleep in bed. Two patients were discharged considerably improved. All of them had been diagnosed as schizophrenics. The maniacal phase was almost totally obliterated in a patient suffering from cyclothymia.

There is every reason to believe that under certain conditions the induction of narcotic sleep for the purpose of conducting sessions of some form of psychotherapy may find important application in the psychiatric clinic. But this still requires special study. This method can apparently prove useful with a certain type of mental patients in whom the usual suggested or conditioned reflex sleep cannot be induced.

Of late, psychotherapy has been administered in the psychiatric clinic by I. Zavilyansky (1953) as an auxiliary symptomatic method in the form of explanatory talks, reassurance, etc. It is usually administered for the purpose of stimulating schizophrenic patients to activity, provoking new vital interests in them, etc. According to the author, these talks are particularly beneficial during convalescence of mental patients, and in schizophrenia, during the period of remission (observations by M. Kashpur). We,

too, were convinced by the experience of the dispensary of the Ukrainian Psychoneurological Institute that these indications were real.

We deem it necessary to dwell on the question of psychotherapy for narcotic addicts and, in the first place, for dipsomaniacs for whom psychotherapy is very important in all forms of treatment. Dipsomaniacs, like other addicts (morphine addicts, cocaine addicts, et al.) have long been the object of attention for psychiatrists. Boards of Health have always combated the abuse of alcoholic beverages. In our country the struggle against this legacy of pre-revolutionary Russia proceeded so successfully that as early as the end of the thirties it was possible to reduce the number of dispensaries for the treatment of alcoholism.

But cases of dipsomania requiring medical treatment still occur. We have in mind the group of dipsomaniacs to whom medical measures can be administered under ambulatory conditions.

The principal method of treating this group of dipsomaniacs is that of verbal suggestion administered when the patient's cerebral cortex is in the phasic state. The initiator of the extensive use of this method was V. Bekhterev in whose clinic a special dispensary for treating dipsomaniacs was opened in 1901. Ambulatory treatment proved so effective that a network of such dispensaries was organized in Petersburg in 1903 on Bekhterev's initiative. For treating chronic dipsomaniacs, Bekhterev recommended: 1) persuasion, 2) verbal suggestion during suggested sleep, and 3) self-assertion and autosuggestion (Bekhterev's triad). I. Nikolayeva (1941) notes the success obtained by her in using this "triad" both in individual and group psychotherapy—a procedure also proposed by Bekhterev (1927), but only on the condition that the sessions be conducted daily without interruption.

In connection with this we would do well to recall the undeservedly forgotten method of treating dipsomania proposed by A. Tokarsky (1891), who recommended that contact with the patient be maintained for at least one year; besides, once having instituted the treatments, the first two sessions showed that treatment by verbal suggestion was unsuccessful only in the case of those clearly suffering from psychic derangements. Yet in certain of these cases dipsomaniacs are also amenable to treatment. The greatest success

It will be noted that these authors were mainly interested in that form of dipsomania in which verbal suggestion could be administered with some measure of success. Studies conducted by A. Mendelson (1910) in the Petersburg dispensaries on a large number of dipsomaniacs (900 people) showed that treatment by verbal suggestion was unsuccessful only in the case of those clearly suffering from psychic derangements. Yet in certain of these cases dipsomaniacs are also amenable to treatment. The greatest success was observed in the so-called false drinking bout, i. e., a situation arising under the influence of imbibing the first, though small amount of alcohol. A positive effect was generally observed in 62 per cent of the cases.

The work conducted in the psychotherapeutic department of the dispensary of the Ukrainian Psychoneurological Institute by our collaborators N. Utevsky and F. Tseikinskaya (1930) attests similar success: a positive result (the patients consumed no alcohol for several months, and in a minority of cases, up to several years) was observed in 118 of the 149 patients; the oft-recurring relapses were discontinued by 2 or 3 sessions

of psychotherapy. The main pre-requisite for success was the strong desire of the patient himself to rid himself of the pernicious habit.

V. Bekhterev's experience in hypnosuggestive treatment of dipsomaniacs was also widely utilized by some of our other collaborators—P. Istomin, V. Truten, N. Utevsky, and R. Shlifer. From 1925 to 1931, they successfully treated 1,600, chiefly chronic, dipsomaniacs by group therapy. A positive effect was observed in 85 per cent of the patients, most of whom were under observation for a period of 5 to 8 years.

As our experience has shown, reading popular science books on the harmful effects of alcohol, especially when examples of recovery are given, contributes very much to the success of the treatment. This serves in large measure to enhance and strengthen the verbal suggestions.

All this bears testimony that the ambulatory aid administered to dipsomaniacs is quite real. We have had ample opportunity to convince ourselves that not all physicians have a correct attitude to ambulatory treatment of dipsomaniacs by verbal suggestion.

Our observations cited below show results of hypnosuggestive therapy.

1. Patient S., 42 years old, was brought to the dispensary in a serious state of depression. According to his wife, he "attempted suicide today under the influence of alcohol, but was accidentally seen by neighbours and the noose was removed from his neck." We learned from the patient that he had been a dipsomaniac for 22 years and that his drinking bouts lasted from 2 to 3 weeks. His sober spells usually lasted a few days, sometimes up to 2 months. The patient was extremely irritable, ate and slept poorly and was totally incapacitated. After 3 sessions of hypnosuggestive therapy his desire for alcohol gradually diminished and after the fifth session disappeared entirely. Concomitantly his sleep and appetite were restored and he regained his former good mood and ability to work. Six months later, on coming for an examination, he told us: "I feel fine, am doing well at work, and no longer think of alcoholic drink. It is as if I have never known any. The odour of alcohol is not only unpleasant to me, it even provokes nausea and vomiting." After 5 sessions of psychotherapy he began to feel good. Positive catamnesis for 10 years.

2. Patient P., 44 years old, was referred to the dispensary with complaints of a distressing craving for alcoholic drink, extreme irritability, frequent depression, poor sleep and appetite, and a sharp drop in work efficiency. Considered himself sick for 10 years; the first two years he drank moderately and infrequently, but then, after going to work in a brewery, he started misusing alcohol. In the last 2 or 3 years he had had drinking bouts lasting from 2 to 3 days at intervals of 1 or 2 weeks. The patient's father had been a dipsomaniac.

Ten sessions of suggestion during suggested sleep were conducted. The very first session of hypnosuggestive therapy put an end to the patient's craving for alcohol; at the same time he regained his cheerfulness and was able to eat and sleep normally. His efficiency was fully restored 2 weeks after the beginning of treatment. The patient remained under observation for one and a half years, reporting to the dispensary every month. He felt good despite the fact that he was re-employed on his former job at the brewery.

3. Patient K., 55 years old, came to us with complaints of false dipsomania: one drink was enough to start him on a drinking bout lasting from 3 to 5 days. Easily succumbed to temptation and, consequently, the bouts were frequent.

The patient suffered from his first episode of dipsomania from 1918 to 1928 when he drank up to half a litre of vodka almost every day. After a course of treatment (12 sessions of hypnosuggestive therapy) he was well for 13 years, i.e., until 1941.

Began to misuse alcoholic drink in 1941 (300 to 400 grm. of vodka daily). When he was called up to army service he drank little. Upon returning from the war in 1945, he resumed his drinking bouts.

Twenty sessions of hypnosuggestive therapy rid him of his craving for alcohol; he did not drink despite his grave misfortunes (death of his son and then his wife).

Many of our observations bear witness to the fact that a radical cure is sometimes possible in cases of severe and protracted dipsomania. By way of contrast, the following two cases of our patients illustrate an erroneous medical approach to dipsomaniacs.

4. Patient K., 35 years old, had been drinking alcoholic beverages almost daily for 10 years. He began by succumbing to temptation by others but in the last few years started drinking on his own. Was treated by baths and strychnine injections in an electrohydropathic establishment. While he was being treated, he drank no alcohol, but the day following the end of the treatment his craving for alcohol drink recurred. One day he applied to a psychiatrist in order to be "treated by hypnosis"; the physician, according to the patient, refused to treat him by suggestion and advised him to make use of cold sponge baths and other procedures. Stimulated by the example of his friend who had been cured by verbal suggestion, he applied to us.

He was given 10 sessions of hypnosuggestive therapy with the result that he ceased to abuse alcohol after the third session. He has shown an indifferent attitude towards alcoholic drink for 6 years, does not go out with drinkers and, as it has often been observed in other cases, he "buys drinks for others, but does not drink himself."

5. Patient V., 42 years old, complains that the slightest nervous strain drives him to drink for 7 or 8 days on end and that when this occurs, he even goes as far as selling whatever he owns, including his underwear. In October 1945, came to a dispensary "to save him by hypnosis." The physician refused to treat him, saying that "no hypnosis would help him, because he was not diseased, but dissolute." This affected him so severely that he went on a drinking bout lasting 10 days. In November he came to us. Twelve sessions of hypnosuggestive therapy were conducted, after which he ceased to abuse alcohol. During the 3 subsequent years of observation he drank no alcohol at all.

Psychotherapy is usually very effective in treating dipsomania. But the craving for alcohol is so strong in some patients that attempts to influence them only by stimuli of the second signal system are of no avail. But even in these cases the conditioned reflex bonds formed in the dipsomaniac's cerebral cortex in response to the "alcoholic situation" can be weakened. This was revealed by I. Strelchuk's systematic studies (1951)

conducted by another method—the formation of a negative conditioned anti-alcohol reaction. By this we mean the addition to the verbal stimulus of stimuli of the first signal system in the form of emetics (both in the waking state and, especially, during suggested sleep). Strelchuk emphasizes that these bonds can be severed with the aid of the word much more easily during suggested sleep. All that is associated with alcoholic drink in the waking state is inhibited during suggested sleep. Owing to this, new negative bonds regarding the use of alcoholic drink are formed more easily in hypnotic sleep. The author stresses the positive importance of protracted suggested sleep (up to 15 or 16 and sometimes 22 hours a day). He correctly maintains that methods for treating dipsomaniacs are on the right track, giving the physician an opportunity "to cease being passive onlookers who watch dipsomaniacs die of their disease often in the prime of life."

It is a matter of regret that most physicians still erroneously believe that "dipsomania is not a disease, but dissoluteness." Obviously, they are not acquainted with V. Bekhterev's statement (1911): "I can affirm from my own personal experience that suggestions made under hypnosis have an extremely favourable effect on the various *morbid cravings* (emphasis by the author) acquired by force of habit, for instance, drunkenness, morphine, and all other drug addiction in general." We may add to this that psychotherapists are frequent witnesses to the enormous satisfaction experienced by these patients after their recovery.

As to hypnosuggestive therapy for *morphine addicts,* it may be said that the situation here is much more complicated. Nevertheless, some patients in this category can obtain the necessary help even under ambulatory conditions, as was shown by P. Istomin's observations conducted (1930) in the psychotherapeutic department of the Ukrainian Psychoneurological Institute. His experience has shown that a certain category of morphine addicts can be successfully treated outside of psychiatric hospitals and that hypnosuggestive therapy is, in this event, a valuable auxiliary therapeutic factor. Thus, 15 patients (out of 17) were relatively rapidly cured regardless of the period during which they had been addicted to morphine; five of these patients suffered no relapses for 2 years.

1. A 31-year-old patient, who was a physician, combated insomnia with morphine injections for a period of one and a half years, the doses reaching 1 grm. of morphine a day in the last 6 months. He made several attempts to discontinue the injections by himself, but the attempts proved futile and were accompanied by distressing abstinence symptoms: irritability, general debility, gastrointestinal dysfunction, auditory and sometimes visual hallucinations. Of late, he had been sullen and reticent and, according to his wife, voiced suspicions that "those around him show ill will towards him." After the two last abortive attempts to discontinue the injections of morphine, he tried to commit suicide. He refused treatment in a psychiatric hospital and insisted on ambulatory treatment by suggestion. Since there was a possibility of exercising strict control over the patient, we instituted psychotherapy under ambulatory conditions.

During the first day of treatment the patient was depressed, suffering from epiphora, sneezing, and stomach rumble; his pulse rate was 86, and his face and hands were covered with sweat. After a lengthy interview

serving as an introduction to the "course of treatment," the patient was put to sleep by verbal suggestion. Sleep was induced in 3 or 4 minutes, the tears and sneezing discontinuing at once, while the stomach rumble stopped and the pulse dropped to 82 in about 10 minutes. It was suggested that he "could be well," that he "hated morphine" and that he "could give it up and never come back to it again." Lastly, he was told he "would take the doses of morphine indicated by the physician." This was followed by a 20-minute suggested rest. Before awakening, an "overwhelming aversion for morphine" and a "complete absence of abstinence symptoms" were suggested to him. When the patient awakened, he was very much surprised that the abstinence symptoms, which formerly disturbed him and never disappeared without morphine, were gone. A considerable change in the patient's mood was observed after the first session. He gave his wife all his needles, syringes, stock of morphine, his medical seal, and all his money. The abstinence symptoms recurred two and a half to three hours later. According to instructions, he injected a dose of 0.8 grm. of morphine (0.2 grm. 4 times) and perceived no difference between this and his former higher doses. That night he slept well.

During the second session (the next day), the following suggestions were made: "Mild abstinence symptoms will continue since the morphine has to be excreted by the organism through the digestive tract and other organs. You are aware of this. Suppression of these unpleasant symptoms will serve as an exercise of your will," and "each dose of morphine, reduced by one-tenth of a gramme, strengthens your body and imparts cheerfulness and a sense of well-being; you have no unattainable goals; you will be well." The patient was awakened after a 20-minute suggested rest. After this, only 0.6 grm. of morphine (4 times 0.15 grm.) was injected subcutaneously during the day, according to instructions. He slept well; the abstinence symptoms appeared only before his visit to the dispensary and manifested themselves in the form of a mild epiphora, dampness of the skin over the entire body, sneezing, and general indisposition. The symptoms disappeared the moment the third session was begun. A dose of 0.4 grm. was prescribed for the following day. The patient came to the fourth session looking cheerful and gratified that he "had been able to do with the dose and had felt no difference in action as compared with his former dose" and that he "had no craving for morphine." This time an "indifferent attitude to the time of injection, physical alertness, calm sleep, and an irresistible desire to follow instructions as to dosage" were suggested.

The fifth session was conducted the day after the fourth. He slept well during the first night after the session. He was worse during the second night which did not follow a session: he was troubled by a stomach-ache and gastrointestinal upsets. The patient explained all these disorders by the fact that there had been no session prior to their appearance. He had taken the prescribed 0.1 grm. After the sixth session he noted that he "felt fine" and that the perspiration and epiphora discontinued. A dose of 0.06 grm. was prescribed. He no longer worried about any of the abstinence phenomena: "let the morphine be excreted." He did very well with the dose and said he wanted to expedite the treatment because "all manipulations with the syringe were extremely unpleasant to him" and that he

administered the injections presumably "only through necessity and with rather an aversion, which he had never experienced before." The following 5 sessions were just as successful; the patient did well with a further dose reduction, was indifferent to the morphine and to the manipulations with the syringe. The last of these sessions was conducted under conditions of a suggested 50-minute rest. During the next, 12th, session the following was suggested: "You do not need any more injections of morphine, you experience a complete moral satisfaction because of the end of the treatment; you feel physically alert and have a total aversion for morphine for ever." Before the beginning of the 13th session the patient stated he "felt like an entirely different person" and wanted to "get back to work as soon as possible in order to find complete moral satisfaction in his work despite all adversities." Towards the 16th day after the beginning of treatment the patient's appearance changed radically: his skin was light pink, his pupils were of normal size, and he had put on 1 kg. of weight. It had been pointed out in the verbal suggestions that the patient "would subsequently rationally control his own behaviour." During the session conducted on the 17th day it was once more emphasized that the "patient had himself taken an active part in the treatment." He was under observation for 2 years with not a single relapse.

In our opinion, the patient was unable to stop using morphine by himself without suggestion. Verbal suggestion played a very important organizing part and was the factor which contributed to the attenuation and termination of the abstinence symptoms (observation by P. Istomin).

2. Patient I., 42 years old, midwife. Began to take morphine about 2 years ago because of pains developed in the limbs after typhus, the maximal dose being 0.5 grm. a day. Lowered efficiency, tires rapidly, is depressed, sometimes to the point of extreme apathy, reticent. Lack of self-confidence and at times, especially towards evening, vague fear. Abstinence from morphine gives rise to salivation, gastrointestinal disorders and pains in legs and arms.

Did not want to be admitted to a psychiatric hospital. Treatment by suggestion during hypnotic sleep was administered the same way as in the preceding case. The dose was lowered to zero in 5 days, while all the abstinence symptoms disappeared during the session with corresponding verbal suggestion and recurred 5 to 8 hours later. All disturbances ceased 4 days after the beginning of treatment. Was discharged 20 days later, after a course of electro-hydrotherapy. Was presented at a conference in a nervous clinic. We saw her one and a half years later. She was in fine condition; there had been no relapses.

3. Patient G., 56 years old, morphine addict. Began to take morphine in small doses 2 years before coming to our attention. The morphine was taken for a cough in powders and reached a dose of 0.3 to 0.4 grm. per day. The effect of these doses told on her in six months: the patient was extremely emaciated and haggard, had lost her appetite and sleep, was unable to occupy herself with anything because she could not concentrate her thoughts on anything. Psychotherapy proved efficacious. Was presented at a conference of a propaedeutic nervous clinic nine days after the end of treatment. Positive catamnesis for two and a half years.

4. Patient G., 26 years old, has been taking morphine for about 5 years, having begun in connection with severe attacks of bronchial asthma. Symptoms of asthma appeared at the age of 15 or 16; at first, the asthmatic attacks occurred only when the patient caught cold, then in response to bad odours and, lastly, during excitement. Was treated in Sevastopol at the Institute of Physical Methods of Treatment and in Leningrad (roentgenotherapy). In the beginning, she took morphine for the night, which immediately terminated the attacks and prevented them. During the last year and a half she has injected 0.5 grm. of morphine subcutaneously every day. During treatment the dose was gradually reduced with each injection. Besides slight perspiration, diarrhea, and general weakness there were no other abstinence symptoms; nor was there a single attack of asthma. On the 14th day of the treatment administration of morphine was discontinued. Not only an aversion for morphine, but also an end to her morbid sensitivity to bad odours and confidence in her recovery from asthma were suggested during the sessions of psychotherapy. There was only one short asthmatic attack throughout the entire period of treatment. Subsequently, the patient spent the whole summer in the Crimea suffering no attacks of asthma. In the autumn she became pregnant (sixth pregnancy; before this all her pregnancies had been artificially interrupted) and gave birth to a healthy child delivered at term. Later, her asthmatic attacks were easily terminated by smoking Abyssinian powder, a thing which had been impossible before treatment.

We believe these data on hypnosuggestive therapy for narcotic addicts should be taken into consideration because they are likely to extend the sphere in which psychotherapy during suggested sleep and, especially, during the subsequent long sessions of suggested rest may be employed. There can be no doubt that not only prolonged suggested sleep, but also pharmacological sleep combined with verbal suggestion may considerably facilitate the treatment of narcotic addiction both under ambulatory and hospital conditions.

It will be noted that cocaine addicts are treated more quickly, more easily, and more radically. Thus, in the 3 patients with visual hallucinations who came under our observation the entire syndrome was removed in 3 sessions of hypnosuggestive therapy for the man and in 2 sessions for the 2 women.

Psychotherapy must thus be regarded as one of the main methods of treating narcomaniacs before the stage of degeneration has been reached.

INTERNAL DISEASES

It must be admitted that internal diseases are frequently of a psychogenic origin. Outstanding representatives of Russian medicine—V. Manassein, S. Botkin, A. Ostroumov, and V. Snegiryov—were the first to emphasize the role and significance of the psychic factor in diseases of the internal organs and the necessity for corresponding psychic treatment.

The cortico-visceral theory of a number of diseases of the internal organs and systems elaborated on the basis of Pavlov's teachings by K. Bykov

and his associates has been confirmed by many psychotherapeutic observations. It is therefore necessary to discover the factors which have acted as psychic trauma forming the basis for certain somatic ailments, and to institute corresponding psychotherapy directed at the pathogenesis of the disease.

In addition, it should be emphasized that psychotherapy is directly indicated in all somatic ailments as an *auxiliary method* of therapeutic influence. Psychotherapy is aimed at enhancing the defensive powers of the patient's organism and is calculated to act as a tonic on the functions of his vegetative-endocrine system through the cerebral cortex. In this manner we can aid in alleviating or eliminating pain and other pathological symptoms (sleep disturbances, loss of appetite, etc.). In a number of cases the somatic ailment in itself acts as psychic trauma resulting in a lowering of the positive cortical tone. This directly hinders the struggle of the organism against the underlying pathology.

The objectives of psychotherapy include not only the removal of the unfavourable influence of the mentally traumatizing factors, but also the restoration of normal cortical dynamics. Verbal influence is a very important therapeutic factor whose significance somatologists are in no position to ignore.

This is all the more important since somatologists not infrequently fail to take into consideration the factors serving as psychic trauma and provoking the dysfunction of the internal organs. In cases when the aetiology and pathogenesis are unclear, physicians usually diagnose some "organ" or "vegetative neurosis"—conceptions which are altogether vague. These conceptions usually include elements of the primary disease of the vegetative nervous system or of the functional accompaniment in some pathological organic syndrome. Hence, not only is erroneous diagnosis inevitable, but also incorrect treatment is unavoidable.

There is very little literature on this important problem. One of the earliest observations was that made by S. Botkin (1874) who established a relation between the activity of the patient's cerebral hemispheres and the size of his spleen varying under the influence of psychic excitement, asthenic emotions (fright), etc. He also described (1881) the relations between a patient's cardiac activity and his emotional state.

The following psychoneurologists have mainly studied these problems: A. Bulavintsev (1903), V. Bekhterev (1906), and later V. Myasishchev, Y. Yakovleva (1937), Y. Popov (1947), and K. Platonov (1952). Of the foreign authors, mention should be made of Déjèrine and Hockler (1912) who investigated psychogenic disorders of the function of the internal organs.

We shall now cite a few case studies.

1. Patient S., 53 years old, came to us with complaints of a distressing anxiety-depression, uncontrollable obsessive fear "of a possible impending misfortune," tachycardia (130 to 140 beats per minute), dysuria, pollakiuria, excessive irritability, impressionability, and sleep disturbances (to the point of entirely sleepless nights). General debility and tachycardia had kept him in bed for 5 months.

Diagnoses: "hyperthyroidism," "cholecystitis," "urinary calculus," "cerebral arteriosclerosis," and "pre-senile psychosis." Treatment

(bromides, iodine, narcotics, digalen, Mabius' serum) produced no effect. No deviations from normal in the neurological status.

While the reasons for the onset of his condition were being ascertained, we found that the patient had sustained a grave psychic trauma 5 months previously—his beloved daughter had suddenly died. For 5 months after that, the patient was unable to enter the apartment where she had died and stayed all that time at his brother's.

Our diagnosis: serious depressive neurotic state with a pronounced complex of vegetative symptoms.

We conducted 10 sessions of verbal suggestion during the patient's suggested drowse, resulting in radical improvement noted after the second session; after the fifth session the patient was able to go out into the street, and after treatment was finished he returned to his apartment. Soon after this the patient and his wife went to the Crimea and upon return he started working. Positive catamnesis for 21 years; no relapses.

2. Since August 1920, patient P., 63 years old, had gradually become generally debilitated and increasingly emaciated, her face acquiring a yellowish parchment colour. After meals she had acute pains in the epigastric region radiating to the subscapular area, nausea, and constipation. She was utterly exhausted, bedridden, starved because of the epigastric pains, and suffered from persistent insomnia. A consultation between a surgeon and internist was held in March 1921. Since an acutely painful swelling was palpable in the region of the stomach, they diagnosed a "malignant tumour."

We induced a long suggested rest. The patient slept for 10 hours. Much to her own surprise and to that of the people around her, she woke up experiencing considerable relief: her pains had subsided, the nausea ended, and she was able to eat. Five sessions of long suggested rest (over a period of 10 days) with corresponding suggestions restored her composure, appetite, sleep and intestinal functions, and eliminated the pains; the "tumour" was no longer palpable. The suggested rest, repeated from time to time, completely restored her health; by summer 1921 the patient gained considerable weight. After the treatment she lived 14 more years.

The positive influence of suggested sleep in this case leaves the accuracy of the diagnosis open to question. The patient's condition could only be genetically connected with her distressing family trouble during the war (loss of her husband, a son and the only daughter). The complex of functional visceral symptoms which had developed under the influence of grave psychic shocks was mistaken by somatologists for an organic complex because the true pathogenic factors had not been taken into account or had been ignored. That is why the mechanism of the disease had been incorrectly understood. The "tumour" diagnosis was not justified.

3. In 1946, patient K., 30 years old, was in the hospital, suffering from epigastric pains and stubborn regurgitation which resembled vomiting (up to 60 times a day). These phenomena appeared without preliminary nausea and regardless of food intake. With the diagnosis of "chronic gastritis" and "suspicion of ulcer," he had spent 209 days in various hospitals over a period of 4 years; he had been examined by 3 expert military medical commissions (confirmed by documents). Was on the invalid list throughout the 4 years. Since a complex of distressing psychic experiences in the

Western Ukraine in 1940 and at the front in 1941-1942 was uncovered, he was referred for psychotherapy. The patient was given 10 sessions of corresponding verbal suggestions during suggested sleep which totally restored his health and efficiency, the regurgitation and pains subsiding after the second session. Has been well and efficient for about 6 years (observation by Y. Katkov). Figure 86 is a diagram showing the development of this neurosis.

It is perfectly clear that in this case the somatologists had also made a mistake in totally neglecting the psychogenia as well as the mechanisms

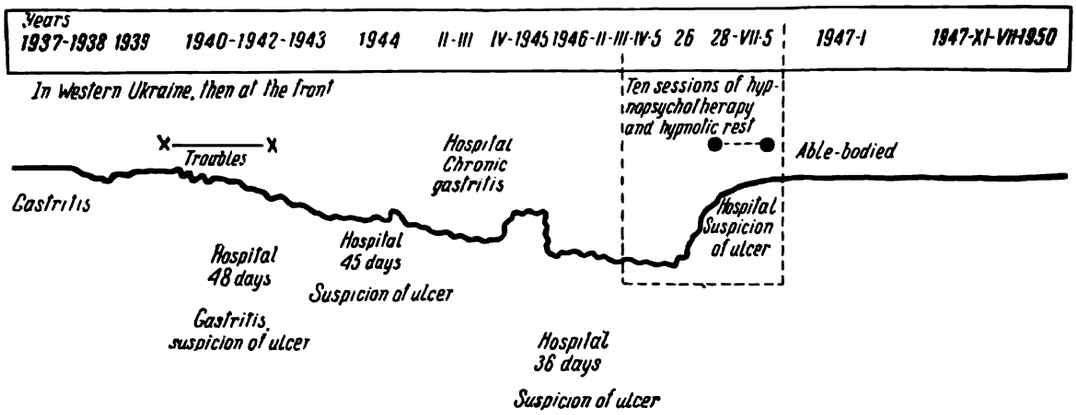

Fig. 86. Diagram showing development of undiagnosed neurosis and efficacy of hypnosuggestive therapy.

of the functional cortico-visceral pathology based on it. Our diagnosis: "psychogenic gastroneurosis."

Regrettably, our associates and we still frequently see patients with most diverse diagnoses of organic internal diseases that they do not have. These patients go for months and even years without proper treatment and are subjected to totally fruitless, because erroneous, treatment.

It will be observed that, by virtue of some unjustifiable tradition, somatologists not infrequently refuse to treat patients with neurotic ailments of the internal organs referring them to neuropathologists (while the latter, it must be said, are inclined to send them to somatologists).

We believe that diseases of the internal organs must, in *all cases,* be treated by internists and not at all by neuropathologists. It is necessary, however, to institute correct treatment (from the pathogenic point of view) based on an analysis of the mechanisms of cortico-visceral pathology and including psychotherapy (all forms) as an important and, in some cases, decisive method of treatment.

On the basis of Pavlov's physiological teachings, the internists now have every opportunity to establish a pathogenically correct approach to all their patients, both from the point of view of diagnosis and treatment. We dare hope that this will not leave any room for diagnostic errors similar to those mentioned above or to the ones in the following significant observation.

4. Since 1916, patient M., 40 years old, had undergone treatment without success over a period of 20 years in a number of therapeutic clinics, sanatoriums and at health resorts for what was, at first, diagnosed as "cancer

of the stomach" and later as a "gastric ulcer." After a number of years of unsuccessful treatment the case was diagnosed as "chronic gastritis" and, lastly, owing to the continuous diminution of the general acidity of the stomach (7-8) and absence of free hydrochloric acid the "final" diagnosis of "atrophic gastritis" was made. Treatment produced no effect and the patient was in a very grave condition.

Since, in addition to general emaciation, nervousness, sleep disturbances and nightmares, the patient also had hypnagogic hallucinations, she was referred to us in 1936. By comparing her dreams with the pseudohallucinations, we managed to uncover a distressing psychic trauma which had given rise to the entire pathological syndrome. While in Central Asia in 1916, she witnessed the tragic death of her family. Her father, husband and daughter were tortured to death before her very eyes. She herself was taken prisoner but later escaped. It was precisely after this that she developed a painful gastric dysfunction. Psychotherapy in the form of suggestions during suggested sleep was administered. "A calm attitude to her past experiences which were no longer of any vital importance, self-possession in the struggle against hardships, faith in her own abilities," etc., were suggested. The sessions of suggestion were followed by a one-hour suggested rest. Ten sessions of psychotherapy resulted in a complete and lasting restoration of the patient's health. Not only did all complaints cease, but free hydrochloric acid began to be found in her gastric juice for the first time in 20 years; general acidity also increased. The patient recovered rapidly. She was under our observation for 18 years and continued to feel well. In 1936, she was presented at a conference of the dispensary of the Ukrainian Psychoneurological Institute and in 1954, at a conference of the department of neuroses of the Central Psychoneurological Hospital.

Mention should also be made of the effective help rendered by psychotherapy during the incipient stages of hypertension or ulcers and also, as was mentioned above, in cases of hyperthyroidism, even if severe. The most effective measures are found in mixed psychotherapy administered at first in the waking state in the form of explanations, reassurance, and persuasion, this being repeated during suggested sleep when "forgetfulness of all distressing past experiences" is suggested. The sessions are followed by long suggested rest during suggested sleep—particularly necessary in serious cases because it usually not only normalizes the tone of the cerebral cortex, but also restores the functions of the vegetative-endocrine system.

Numerous studies were conducted in this direction in 1947-1949 by our collaborator M. Kashpur (1953) in the Kharkov Endocrinological Clinic, the dispensary of the Ukrainian Psychoneurological Institute and in the Clinic of Neuroses of the Ukrainian Psychoneurological Hospital of the Ministry of Railways. These studies have shown that cases of psychogenic hyperthyroidism require a strictly individual approach and employment of the above methods of psychotherapy with subsequent suggested rest. We shall cite one of the observations of M. Kashpur whose 48 out of 75 thyrotoxicotic patients had suffered psychic trauma. Psychotherapy administered to 22 of these patients produced positive results; their catamneses were traced over a period of 3 to 4 years.

5. Patient V., 27 years old, was referred to the dispensary of the Ukrainian Psychoneurological Institute by an endocrinological dispensary

in October 1948 with the diagnosis of "hyperthyroidism." The illness began acutely in August 1948 after a fright: the patient had been awakened from her afternoon nap by shouts and the glow of a fire near her house. This gave rise to a feeling of something pressing on her chest, a sense of "choking" in the throat and palpitations. This condition lasted for several days. Suspecting hyperthyroidism, the physician prescribed iodine preparations. A month later the patient observed that the front part of her neck was enlarged. Her condition changed for the worse: she began to perspire more profusely, developed a feeling of "waves under the skin" throughout the body, tired easily, and became totally incapacitated. She was no longer able to take care of herself because the least physical effort tired her out; she grew impatient and tearful.

Objective findings: tense patient, tremor of extended fingers, widened palpebral fissures, infrequent winking movements, slight exophthalmos, soft pulsating struma, pulse rate 100, basal metabolism + 23 per cent.

Six sessions of reassuring and explanatory psychotherapy on the conscious level with subsequent long rest during suggested sleep were conducted.

Improvement was observed immediately after the first session. By the end of the treatment the patient was cheerful and composed; she slept normally, had a pulse rate of 74, the distressing sensations in her body disappeared and she no longer became tired. She was now able to take long walks and do her housework. After treatment she went home quite well. Was presented at a medical conference.

The author has observed cases of development of the hyperthyroid syndrome based on the mechanism of suggestion and autosuggestion in patients with an overanxious character (27 persons); the disease appeared after the patient had read about hyperthyroidism or had met people suffering from hyperthyroidism, etc. The development of this syndrome, based on the mechanism of autosuggestion, is substantiated, as we have already pointed out, by Pavlov's teachings.

Taking into account the existence of psychogenic thyrotoxicoses and the efficacy of individual psychotherapy in these cases, we consider the neglect of this form of therapy by internists and surgeons to be a big mistake. The classifications of thyrotoxicoses should include the psychogenic form of hyperthyroidism and it will be remembered that in these cases individual psychotherapy provides effective treatment.

In view of this, we cannot agree with the categorical conclusion drawn by P. Schilder and O. Kauders (1927) to the effect that "certainly, hypnosis can in no way be regarded as a normal method of treating hyperthyroidism." As a matter of fact, it is always necessary to begin with an analysis of the conditions under which the thyrotoxicosis developed and if its aetiology contains a psychogenic factor the administration of hypnosuggestive therapy is a *sine qua non.*

Psychotherapy with subsequent long suggested rest was administered at the Second Therapeutic Clinic of the Kharkov Medical Institute (Professor S. Sinelnikov, Director) to 65 ulcer patients. Group hypnotherapy was instituted. Treatments were administered without the use of any hypnotics for a period of 20 days, sleep lasting from 15 to 17 hours a day. The results obtained proved very encouraging. Thus, according to

Sinelnikov's data, these patients had considerable pain before treatment, dyspeptic symptoms were strongly pronounced, the gastric juice of the overwhelming majority of the patients was highly acid and the ulcer niche was seen on X-ray in 56 patients. On the third day of treatment the pain gradually began to diminish in most of the patients and disappeared by the seventh or ninth day. In addition, the patients were kept on an expanded diet, i.e., besides the food they were given according to Table No. 1, they received meat and fish dishes, fruit, cheese, caviar, etc. The dyspeptic symptoms disappeared along with the pain, the acidity of the gastric juice was perceptibly normalized and the ulcer niche seen on X-ray disappeared in 35 out of the 56 cases. During treatment, the patients gained an average of 2 to 3 kg., some patients gaining up to 4 kg. It was also observed that the efficacy of the psychotherapy depended on the typological peculiarities of the nervous system. A smaller percentage of recoveries was observed in "excitable" patients. On the other hand, treatment proved highly effective in the group of "inhibitory" and "even-tempered" patients.

The following observation is given by way of illustration.

Patient P. was admitted to the clinic on November 18, 1951, with an aggravated ulcer: acute pain, almost daily vomiting after meals and other dyspeptic symptoms. Had been ill since 1945. In January 1950, the pain grew more frequent and the patient suffered a gastric haemorrhage. His condition had changed for the worse since November 1951. There was acute pain in the epigastrium with tenderness on palpation. He was depressed and his reactivity was increased. Roentgen showed an ulcer niche in the lesser curvature of the stomach.

Suggested sleep therapy was instituted with the patient sleeping from 15 to 17 hours daily for a period of 21 days. Corresponding suggestions were made to him from time to time during his suggested sleep. The sleep was induced by suggestion, the patient falling asleep very well from the very first day, but awakening with pain during the first 10 days. Thereafter the pain began to diminish; during the second half of the period of treatment the patient slept calmly and deeply without dreaming (both during suggested sleep and at night). As the pain subsided his general condition and emotional state gradually improved, as did his appetite, while the dyspeptic symptoms slackened off and soon disappeared altogether. The patient lost his apathy and regained his faith in recovery. Despite the increased dietary intake there were no pains. The control roentgenogram revealed no niche, the patient was discharged, after 24 days in the clinic, in a well-balanced emotional state and with a gain of 3.5 kg. of weight.

All the above observations have shown that internists should always keep in mind the possibility of a psychogenic disorder of the functions of the internal organs (most frequently the gastrointestinal and cardiovascular systems). In such cases psychotherapy is directly indicated. It will also be remembered that the content of the patient's gastric juice may change under the influence of emotion even while the test is being made. We should likewise remember the possibility of a conditioned leucocytotic reaction which may manifest itself if the rules of taking a blood sample are not observed, as we have already pointed out above.

We may conclude that psychotherapy can be employed in such diseases as bronchial asthma, paroxysmal tachycardia, and hypertension in the

incipient stages, especially if these diseases have been caused by psychogenic factors.

The following is a very significant case in point.

A 20-year-old patient complained of spells of palpitation which came on without any external reason several times a day and lasted from 1 to 4 hours with the pulse rate reaching 140 beats per minute. She had been sick for 2 years and had been treated all that time as an outpatient (pharmaco- and hydrotherapy) with a diagnosis of paroxysmal tachycardia. She had not been able to obtain any relief.

The anamnestic interview revealed that the onset of the ailment was connected with psychic trauma: one day, while attending the theatre, she saw her fiancé with another girl. She was very much upset, her heart began to pound and she was unable to regain her composure for a long time. She spent a restless night, since her palpitation continued, and fell asleep only towards morning. Though she woke up without tachycardia and calmed down in a few days, several days later the attack of tachycardia recurred and the patient developed a fear lest her heart attacks keep recurring.

Hypnosuggestive therapy with a long suggested rest following each session was administered. After 10 of these sessions the attacks of tachycardia ceased, though the fear of their recurrence persisted for a long time. She went out into the street only with her relatives. Subsequent sessions of hypnosuggestive therapy succeeded in eliminating this fear as well. A positive catamnesis was obtained for 2 years; there were no relapses (observation by Y. Voronina).

Suggested rest therapy with corresponding reassuring, encouraging and re-educating verbal suggestions assumes particular importance in internal diseases.

As a sequel to influenzal pneumonia, a patient became severely emaciated, weak and adynamic, and complained of stubborn insomnia and an aversion for food. The patient was in a dangerous condition. After the first session of suggested rest which lasted about half an hour (she fell asleep quickly and deeply) she felt physically quite alert and acquired an appetite. The suggested rest of up to 8 hours' duration repeated on subsequent days completely restored her nocturnal sleep and appetite. The patient's condition improved with each passing day and within a week she walked about freely and was perfectly well. It should be noted that during the incipient stage of such diseases as hypertension, ulcers, and pulmonary tuberculosis, *one of the principal methods of treatment is not only reassuring, but also encouraging psychotherapy in the broadest sense of the word* because it tones up the functions of the endocrine-vegetative system through the cerebral cortex.

The tuberculous patient's sleep can thus be normalized and prolonged, his appetite improved and a faith in recovery created and strengthened. The studies conducted by R. Shlifer (1930) have confirmed the correctness of some authors' opinion that negative emotions exert a harmful influence on the tuberculous process. Psychotherapy, on the contrary, raises the tone of the cerebral cortex and exerts a positive influence on the somatic processes and on the functions of the vegetative nervous system, contributing to the effectiveness of the struggle against tuberculosis. Russian clinicians

(S. Botkin, G. Zakharyin, et al.) long ago attached great importance to negative emotions in the development and aggravation of the tubercular process. In our time this question has again been raised by Soviet authors—S. Voznesensky, Y. Mirtovskaya (1934), A. Samoilovich (1940), S. Berlin-Chertov (1948), et al.

However, the extensive literature dealing with the influence of the tuberculous infection on the mind contains no mention of the great importance of psychotherapy in raising the tone of the cerebral cortex of the patient suffering from pulmonary tuberculosis; it supplies only the most general hints. Administration of psychotherapy may be beneficial to tuberculous patients not only from the somatic point of view. It is also necessary for the elimination of the reactive neurotic states resulting from the various psychic traumatic factors which derange the functions of the patient's nervous system, creating conditions under which it is difficult for the organism to struggle successfully against the infection. The very strong negative asthenic reaction of consumptives to the disease itself must be taken into consideration.

The following is one of our observations cited as an illustration.

Patient I., 36 years old, with no pathological heredity, came to us with the complaint that he had been found to have pulmonary tuberculosis after distressing psychic trauma (death of wife and child) 2 years previously. He lost his appetite, suffered from insomnia, was irritable and generally indisposed, felt a total aversion for fats, exhibited cachexia and coughed with expectoration containing tubercle bacilli. Erythrocyte sedimentation rate, according to Litzmeyer, 45 minutes. The nervous system showed signs of neurasthenia.

Hypnosuggestive therapy was administered for the purpose of changing the patient's attitude to his past misfortunes and to eliminate the disorders in the functions of the vegetative nervous system. After a preliminary interview, a deep drowse was induced in the patient, during which a calm attitude to the family misfortune and to his tuberculosis, cheerfulness and confidence in recovery, good sleep and appetite were suggested. "You will eat everything with gusto because your recovery depends on it. You will consume butter and rich food. The recollections of your misfortune no longer trouble you and you have regained an interest in life, recovered your mental powers and cheerfulness," etc. The sessions were conducted on alternate days, and the patient's condition improved with each session. After the fourth session the patient's appetite improved so much that he enjoyed taking 5 or 6 meals a day and consumed a great deal of butter. He recalled the death of his wife and child with composure. In 10 days he gained 3 kg. Eight sessions were conducted in the course of 3 weeks with the result that the patient felt good, "did not know himself," and gained 4 kg. His temperature was 37.2-37.1°C., the cough and amount of expectoration diminished, and isolated bacilli were rarely discovered in his sputum (before the suggestive therapy there had been from 12 to 14 per field). The chest specialist noted a considerable decrease in the number of objective signs of the tubercular process. The patient was discharged and 4 months later wrote and told us he was completely well. "I am lucky to have been treated at the psychoneurological dispensary. I had been treated in Crimean dispensaries for consumptives a whole year, but

obtained no relief. Your dispensary helped me get well. I eat well, consume fats, sleep soundly, calmly recall the images of my wife and child, which formerly tormented me. There are no bacilli in the sputum and the process has ended. I have now gained 12 kg., returned to life and have already begun working" (observation by R. Shlifer).

Observations have shown that group psychotherapy (in the form of psychotherapeutic and psychoprophylactic talks and lectures in sanatoriums and dispensaries for consumptives) must also be given due consideration. We personally have been convinced of the considerable benefit afforded by the lectures and talks which we gave in various sanatoriums (Bakuriani and Romny).

The foregoing shows that it is very necessary to pay close attention to the general psychic state of tuberculous patients.

Successful treatment of these patients requires a study not only of the condition of their lungs, but also of the state of their minds, their higher nervous activity. It is not only the disease, but also the patient who must be treated. This requires that the chest specialist be sufficiently well versed in the physiology of the higher nervous activity to make systematic use of psychotherapeutic methods. It is precisely in this manner that it is possible to augment the defensive forces of the organism, to stimulate the somatic processes and to help the tuberculous patient in the successful struggle against his disease.

We believe that further research and observation along these lines will lead to the recognition of the necessity for including psychotherapy in the battery of therapeutic measures used in sanatoriums for consumptives.

SURGICAL DISEASES

The surgical clinic with its specific operative methods of treatment makes use of various extraordinary stimuli whose influence cannot but affect the state of the patient's cortical dynamics. It is therefore precisely in the surgical clinic that the prophylactic and therapeutic significance of verbal suggestion, administered properly and in due time, manifests itself with uncommon clarity.

In Russia, the pioneer in using suggested analgesia during suggested sleep in lieu of surgical anaesthesia was P. Podyapolsky (1915). In the Ukraine, this method was used for the first time in the gynaecological clinic by A. Nikolayev (1923), in the surgical and gynaecological clinics by us and I. Velvovsky (1923) and later repeatedly by our collaborators.

The first surgical operation under hypnosis, in which we took part, consisted in removing post-appendectomy adhesions (operation performed by Professor I. Kudintsev).

The following is a brief description of the case.

Patient N., 23 years old, complained of pains occasioned by adhesions after an appendectomy performed several years previously. To produce suggested analgesia for the operation, four preparatory sessions of verbal suggestion during suggested sleep were conducted, suggesting a calm attitude to the forthcoming operation. Several minutes before the operation complete motor and sensory paralysis of the lower part of the body was

suggested to the patient in whom sleep had been induced by verbal suggestion in the ward, the patient being told that the paralysis was produced by a "tourniquet applied to the waist." The patient was then transferred in the state of suggested sleep to the operating room where the operation was performed. While the skin, fascia and peritoneum were being cut and bleeding controlled the patient was perfectly calm: calm expression of the face, normal respiration, and even pulse (68 beats per minute). Numerous adhesions were discovered and the caecum was found to be invested in a sack formed by the adhesions. The removal of the adhesions evoked no reactions on the part of the sleeping patient, but she was disturbed the moment the mesentery was stretched. "Why has my sleep been disturbed? It is unpleasant, I want to go home. Tell the professor I do not want any operation." The pulse which had been even and full up to this point rose to 100. Composure and a pleasant dream were suggested to the patient: "You are out boating in gay company on a moonlit night," etc.; she quieted down and slept on undisturbed. Evidently the suggestion of the dream, which created a focus of excitation in the cerebral cortex by negative induction, inhibited the interoceptively stimulated region of the cortex and freed the patient from the unpleasant sensations. After the operation the patient was taken back to the ward in the same state of suggested sleep and was awakened. She felt very well and had no idea of the operation that had lasted an hour. Micturition was begun without trouble the same day after corresponding verbal suggestion. After the wound healed by first intention, the patient was discharged in good condition.

Our second experience with suggested analgesia during surgical interference, similarly conducted during suggested sleep, was a case of inguinal hernia (patient V.). The operation was performed in the surgical department of the Second Kharkov Hospital and was just as successful as the first case.

To show the extent to which hypnosuggestive analgesia may be used in surgical practice, we may cite the operations performed by several surgeons in the Ukraine and the R.S.F.S.R. Let us recall, in the first place, the use of hypnosuggestive analgesia by the hypnologist P. Podyapolsky. During the First World War he participated in close to 30 surgical operations (including a section of venous nodules along the entire lower extremity, resection of a rib and of the nasal septum, removal of a bullet from the calcaneus, etc.), performed analgically during suggested sleep. With the participation of I. Velvovsky, Professor M. Fabrikant performed such operations as a removal of a neurinoma of the thigh, mammary gland fibroadenoma, post-appendectomy adhesions, etc., in the Kharkov Student Hospital in 1924. Mention should be made of the experiment with hypnosuggestive analgesia in a high thoracoplasty performed by surgeon I. Vartlinsky in the department for consumptives of the Sverdlovsk Railway Hospital and described by V. Bakhtiarov (1933). The operation was exceptional in its complexity, the extent of the operative field and duration ($2^1/_2$ hours). Seven upper ribs were resected and the scapula was separated from them in a 29-year-old patient with pulmonary tuberculosis who was in such a grave condition as to preclude chemical anaesthesia. The operation, as well as the post-operative period, was successful in every respect and the patient did not remember it.

Whereas in the aforementioned cases the operations were performed by surgeons with the aid of hypnologists, the examples cited below show that it is not only possible for the surgeon to induce the hypnosis himself, but that he may also perform the operation at the same time. S. Berg (1926), the first Russian surgeon to use hypnosis quite independently for production of analgesia, made interesting observations pertaining to the use of verbal suggestion methods in the surgical clinic.

Of no little interest are the clinical observations made by surgeon P. Shcheglov (1930) who also successfully operated on patients under hypnosis. He performed 18 such operations including one experimental laparotomy in connection with cancer of the cervix uteri, one hysterectomy, two cholecystectomies, one plastic operation on a fistula of the parotid gland, plastic operations done by the Tarsch and Maresk methods, a section of part of the thyroid gland, an abdominal incision in a cancer of the cervix uteri, a ventrofixation, and, lastly, nine appendectomies. All these operations were performed under anaesthesia produced by verbal suggestion during suggested sleep without the use of any chemical anaesthetics.

Moreover, in the surgical clinic of the First Moscow Medical Institute, surgeon R. Paramonov successfully performed, without the aid of a hypnologist, the following operations during the patient's suggested sleep: two herniotomies, five lipectomies and gangliectomies, two phalangectomies, twenty incisions of phlegmons and abscesses and 28 tooth extractions. Surgeons recognize simultaneous verbal suggestion and performance of operations as fully possible and expedient. The same method of hypnosuggestive preparation of hyperthyroid patients for operations was successfully practised by G. Gurevich and I. Mastbaum in the surgical clinic of the Kharkov Stomatological Institute.

S. Berg's observations (1926) have shown that on easily suggestible persons minor surgical operations can be performed in the waking state under conditions of suggested analgesia. He notes that under ambulatory conditions suggested anaesthesia can be produced in the waking state "in many patients more often than is commonly believed." This is apparently due to the fact that, both in fresh trauma and in urgently indicated surgical operations, the tone of the patient's cerebral cortex happens to be greatly lowered and suggestibility highly increased—a situation which must be taken advantage of by the surgeon. The practice of suggested analgesia has also justified itself in ambulatory dentistry even in serious stomatological operations, not to mention simple ones; in many cases the teeth and roots were extracted in the presence of a periodontitis (I. Velvovsky, Kharkov Student Polyclinic).

All this indicates that it is really possible to perform various surgical operations even on the abdominal cavity during suggested sleep rather than under anaesthesia. If the hypnosuggestive method cannot be widely used because of some certain special conditions under which the patient must be prepared for the operation, it should be kept in mind for all those cases in which the use of chemical anaesthetics is contraindicated. The hypnosuggestive method can be more widely employed in the form of so-called hypnoanaesthesia, in which a small dose of anaesthetic (ether, chloroform) is used in addition to the suggested sleep. Experience has shown that under

these conditions the administration of anaesthetics can be reduced by 70 to 80 per cent (S. Berg, V. Bakhtiarov, D. Shcheglov, I. Velvovsky). Thus Shcheglov performed 13 out of 18 operations under hypnoanaesthesia with a radically reduced dosage of chemical anaesthetics. Occasionally, however, should the anaesthetized patient begin to feel pain during the surgical operation, he is given a small amount of anaesthetic (20 to 30 ml. of ether) to deepen the suggested analgesia.

Extensive opportunities for using suggested sleep and verbal suggestion present themselves during the pre-operative and post-operative periods. Surgeons must, naturally, devote their attention to the patient's psychic state before the impending operation, since under these conditions the patient's cerebral cortex is acted upon by a series of various strong stimuli which frequently traumatize him. The use of verbal suggestion and suggested sleep during the *pre-operative period* corresponds to all the requirements of the protective regimen for this period. Fear and excitement before the operation, as well as the appearance of the operating room, sometimes evoke in the patient a reactive neurotic state, insomnia, lack of appetite, general or local cutaneous itching, etc.

All of this can be removed by corresponding verbal suggestion without any particular difficulty and in the shortest possible time. Our observations have shown that prolonged sleep therapy, conducted during suggested sleep without administration of any chemical hypnotics or with minimal doses, is very beneficial. During the pre-operative period it is possible to use the group method of preparation in the form of simultaneous suggested sleep in several people for a more or less long period of time by employing certain first signal stimuli. Sleep may be induced more rapidly by the administration, during the first two or three sessions, of 0.75 to 1.0 grm. of chloral hydrate or 0.1 to 0.15 grm. of amytal sodium, or by indirect suggestion with the administration of a placebo.

The following is an example of successful employment of psychotherapy in a patient suffering from a distressing pre-operative neurotic state.

Patient S., 38 years old, was admitted to surgery for an operation on the twelfth thoracic and first lumbar vertebrae affected by tuberculosis. On admission the patient complained of increased irritability, lability of mood, poor sleep and lack of appetite. Owing to the patient's grave reactive condition determined by her chief disease (tuberculosis of the spine), the operation (fixation of the spine by the Albee method) could not be performed immediately and had to be postponed. However, after the patient had stayed in the clinic for two months her condition changed for the worse: splitting headaches, nausea, vomiting, palpitation, pains in the precardium, almost complete loss of sleep and appetite (without any signs of organic lesions of the internal organs or the nervous system). According to the neuropathologist, there were "no focal or meningeal symptoms. Functional neurosis with hysterical reactions, vegetative dystonia." Since the patient's condition grew worse and pharmacotherapy produced no effect, psychotherapy was prescribed.

The patient's general appearance and posture were quite characteristic: she lay supine, her eyes fixed on the ceiling, and afraid to turn her head "lest she immediately begin vomiting." She spoke in whispers, complained of headaches and frequent vomiting, hardly ate anything, barely slept at

night having "nightmares" as soon as she dozed off, was in a state of constant fear and from time to time had attacks of tachycardia accompanied by dyspnoea and precardial pains. Aware that she could not be operated on in this condition and that without the operation the process in the spine would become more acute she decided to commit suicide.

Sleep was rapidly induced in the first session of hypnosuggestive therapy during which absence of headaches, good sleep and appetite, cheerful mood and a desire to grow strong before the coming operation were suggested. It was explained to the patient that all her distressing experiences were due to fatigue of her nervous system and that all her suffering would disappear under the influence of psychotherapy. She woke up without a headache, in a good mood and "wanted to eat." Subsequently, the sessions were conducted daily and then on alternate days. Finally, the sessions were replaced by talks conducted on the conscious level. During the very first week of psychotherapy the patient displayed an interest in her environment, began to eat and sleep well, to read and to embroider. Two months later, when she had grown sufficiently strong, the operation was performed —osteoplastic fixation of the spine by Albee's method. She was discharged in good condition. Six months later she came to the clinic and confirmed the state of her well-being (observation by F. Sivenko).

The *post-operative period* offers extensive opportunities for the use of verbal influence. According to S. Berg, various complaints can be removed by verbal suggestion in the waking state in 50 per cent of patients, and in a light suggested drowse in the others. Pains from wounds and bandages, and distressing post-operative pain sensations outside the operative field because of the forced immobility in bed may be relieved in this manner. A sense of tormenting hunger can be alleviated by simple verbal suggestion. It is easily effected by a suggestion of sham feeding. Lastly, retention of gas and urine, as well as urinary incontinence, etc., observed after chemical anaesthesia, are successfully treated by this method. In such cases, verbal suggestion obviates the necessity for the rectal tube, the catheter, and injections of narcotics.

The method of verbal suggestion is thus an important auxiliary method in surgery. However, there is no reason to believe that the method of hypnosuggestive anaesthesia can be systematically used in major and complicated operations or that it can completely replace the chemical mode of anaesthesia. Nevertheless, a combination of the method of suggested anaesthesia with local analgesia should find wide application in surgical practice. Among the other prophylactic measures used during the pre-operative period it is always desirable, in the interests of the patient, to ascertain in advance if the method of suggestive analgesia can also be used for anaesthetic purposes. It should be remembered that, if verbal induction of sleep fails, success may be attained by the preliminary administration of small doses of hypnotics acting as unconditioned stimuli. We have long emphasized (K. Platonov, 1925) that the extensive possibilities offered by verbal suggestion should attract the surgeons' most serious attention.

Early attempts to use the hypnosuggestive method in surgery persuaded our surgeons—pioneers in the use of verbal suggestion for anaesthetic purposes—of its significance and of the need of mastering the method themselves. The method of verbal suggestion and hypnosis should be

mastered by every surgeon "to the same extent as the method of chemical anaesthesia" (S. Berg). At the same time, it is clearly necessary to introduce this method into day-to-day surgical practice (D. Shcheglov). We must, therefore, quite agree with the regret expressed by A. Bakulev (1951) that "the brief period of enthusiasm for hypnoanaesthesia is over, and this truly physiological method of influencing the mind of the surgical patient has been left in the rudimentary phase of its development. . . ."

PSYCHOTHERAPY IN OBSTETRICS AND GYNAECOLOGY

We shall now consider the question of using psychotherapy and psychoprophylaxis in the field of obstetrics, mainly administered for painless childbirth and in the fight against the toxemias of pregnancy and disorders of lactation.

Attempts to achieve painless childbirth by verbal suggestion were made as early as the nineteenth century. However, systematic elaboration of the problem of painless childbirth on a mass scale has become possible in the Soviet Union when various pharmacological methods used for painless childbirth began to be studied constantly as early as the 1930's, while the method of psychoprophylaxis in childbirth has been used since 1951. The latter was based on the idea that birth pains, as they manifested themselves in the majority of women, were also the product of a conviction, deeply rooted in the people, that these pains were inevitable and irremediable. In times past, this belief was in large measure influenced by the well-known biblical legend.

Our first studies in this direction date from 1925-1928. Co-operating with the obstetrician M. Shestopalov (1925) and the psychoneurologists V. Kislov (1929), P. Istomin (1930) and R. Shlifer (1930), we convinced ourselves that the hypnosuggestive method we used for painless childbirth was superior to the pharmacological one (see the supplement for a case history of childbirth in which the hypnosuggestive method was used). At the same time, we arrived at the conclusion that in many cases the physiological mechanism of suggestion and autosuggestion plays no small part in the genesis of birth pains. A. Nikolayev (1924), who simultaneously with us and independently, as well, used verbal suggestion during suggested sleep for painless childbirth, came to a similar conclusion.

Subsequently, in association with our collaborators (the psychoneurologists Z. Kopil-Levina, N. Pereverzev, and Y. Tokin, and the obstetricians V. Pronayeva, I. Tsvetkov, and M. Koganov), we undertook to elaborate extensively and in great detail the methods of painless childbirth by hypnosuggestion (K. Platonov, 1936, 1937, and 1941). The material we have accumulated (776 cases) shows that the method of verbal suggestion is very effective and that its use relieves or greatly alleviates delivery pains. This method is effective both during suggested sleep and in the waking state. We believe the opinion of certain obstetricians that birth pangs are presumably "necessary for normal childbirth" to be erroneous. On the contrary, we need measures aimed at removing all sorts of concomitant asthenic emotions (anxiety, fear) before childbirth.

Our studies show that, in pharmacological anaesthesia, no small part is played by the latent factor (indirect suggestion) which camouflages the actual influence of the pharmacological factor (K. Platonov, 1938, 1940). At the same time, it has been possible to determine the positive significance of the actual preparation of pregnant women for painless childbirth, both individually and in groups, because it helps at the proper time to remove the negative emotional states connected not only with fear and excitement before childbirth, but also with possible additional psychic trauma of an extraneous kind.

Various reasons for the reactive neurotic states, frequently iatrogenic (obstetric), were also discovered during this preparatory period (Z. Kopil-Levina). This serves to lay still greater emphasis on the psychoprophylactic and psychotherapeutic importance of obstetric consultations.

The significance of psychoprophylaxis is especially clearly demonstrated by successful painless childbirth in women who attended popular lectures on painless childbirth during their pregnancy.

Positive results were also obtained in a great number of cases by other authors: V. Zdravomyslov (Moscow, 1930-1938), M. Vigdorovich (Leningrad, 1935-1941), E. Kagan and G. Belozersky (Leningrad, 1931), M. Syrkin (Kiev, 1949), A. Gotsiridze and Y. Ter-Ovakimov (Tbilisi, 1936), V. Kislov (Donets Basin, 1929; Tula and Pyatigorsk, 1947). In his practical work V. Kislov made use of the method of painless childbirth employing verbal suggestion with positive results in more than 100 cases. He also introduced preliminary, pre-parturient, psychoprophylactic preparation of pregnant women in consultation practice.

The experience of recent years has shown that the problem of painless childbirth could be solved on a mass scale by the use of the psychoprophylactic method elaborated by I. Velvovsky, V. Ploticher and E. Shugom (1950, 1954). This method is based on special measures aimed at preparing pregnant women for proper behaviour during parturition.

The method of psychoprophylactic anaesthesia of childbirth is now used in many Soviet cities.

But should painless childbirth through psychoprophylaxis fail in individual cases, it is only necessary to resort to verbal suggestion with the patient in a suggested drowse or to indirect suggestion with the patient in the waking state—particularly important when the use of drugs is contraindicated.

The method of verbal suggestion in the waking state or in a suggested drowse can also be used for post-partum complications (painful separation of the placenta, suturing perineal tears) and when obstetrical forceps are required (observation by Z. Kopil-Levina, I. Tsvetkov, and also V. Zdravomyslov, 1938).

Mention should also be made of the enormous and important work in using verbal suggestion in obstetrics conducted over a period of 20 years in Leningrad by obstetrician M. Vigdorovich in the 15 "hypnotariums" organized under his supervision by the Leningrad City Board of Health. Painless childbirth has already been effectuated in 4,575 cases with positive results in 91 per cent; toxemias of pregnancy were relieved in 95 per cent of the cases (400 cases) and 126 false pregnancies were treated successfully in these "hypnotariums."

In addition, the method of verbal suggestion during hypnotic sleep is very effective in impending miscarriage. M. Miloslavsky's systematic studies (1951, 1952, and 1954) have indicated that uterine excitability can be reduced, cramp-like pains can be suppressed, and blood discharge in impending premature birth can be terminated by verbal suggestions during suggested sleep. According to his data, of the 387 pregnant women, 87 per cent was delivered at term; of these 30 per cent had had habitual miscarriages and 5 or 6 incompleted pregnancies in the past. These studies are of great practical importance.

Furthermore, the method of verbal suggestion on the conscious level and during suggested sleep may also be used very successfully during the puerperium, particularly in dysfunctions of the mammary glands. The studies of V. Zdravomyslov (1938 and 1949), the first in the Soviet Union to use this method in disorders of lactation, have demonstrated its high efficiency (close to 100 per cent). The method was used with 77 parturient women, the overwhelming majority of them showing a rapid and lasting positive effect under the influence of one or two sessions of suggestion. V. Zdravomyslov has also described cases in which he eliminated by suggestion spasm of the mammary gland accompanied by spastic phenomena in other organs—constipation, retention of urine, painful contractions of the uterus. In addition, Zdravomyslov removed by suggestion post-partum pains, emotiogenic uterine haemorrhages, dysmenorrheas, insomnia, sexual perversions (masturbation), and vaginismus. Analogous results were obtained by M. Miloslavsky (1954) who administered hypnosuggestive therapy to regulate the function of the mammary glands.

We have already mentioned the possibility of removing the symptoms of the so-called toxemias of pregnancy by verbal suggestion. We emphasize once more that this method ought to attract the special attention of obstetricians, especially since most of the patients affected by toxemias prove to be very suggestible.

The possibility of removing by hypnosuggestive therapy a type of toxemia of pregnancy, which manifests itself as a choreic hyperkinesis, should be considered in somewhat greater detail.

1. Gravid patient K., 25 years old, with serious toxemia of pregnancy in the form of a choreic hyperkinesis, was referred by obstetricians to a medical commission to decide the question of terminating her pregnancy. Her previous pregnancy had been interrupted for the same medical indication. K. was referred to the dispensary of the Ukrainian Psychoneurological Institute.

Four sessions of hypnosuggestive therapy terminated the hyperkinesis and saved the pregnancy (observation by Y. Voronina).

The following case of therapy in toxemia of pregnancy illustrates the significance of the usual pharmacological treatment (intravenous calcium injections) and of verbal suggestion.

2. Gravid patient O., 26 years old, came to us in the eighth week of her fourth pregnancy. Vomiting began in the seventh week of the pregnancy. Two sessions of hypnosuggestive therapy had brought relief. Psychotherapy was, for some accidental reason, discontinued and calcium therapy was administered for 2 weeks. Owing to the failure of the latter to produce

desirable results, however, hypnosuggestive therapy was instituted again; success was rapid and complete (observation by S. Yoffe; Figure 87).

There are cases in which vomiting persists even after an abortion, i.e., the vomit reaction fixed in the cerebral cortex does not disappear. The following observation may serve as an illustration.

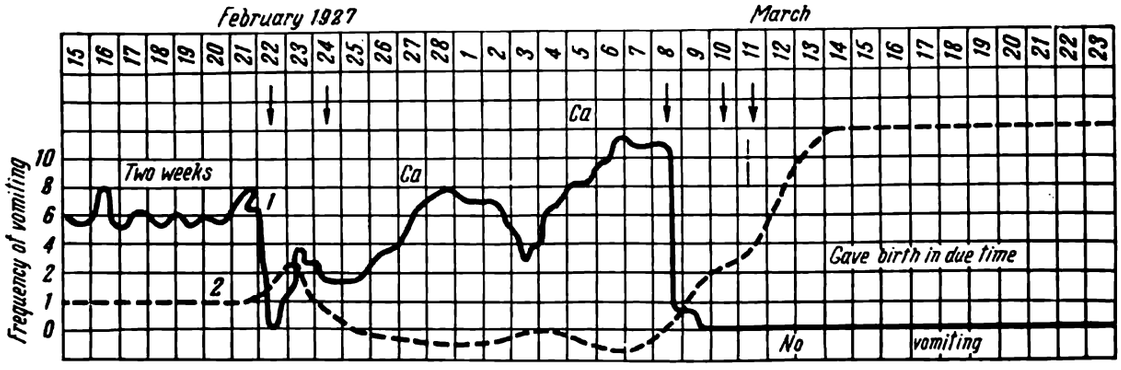

Fig. 87. Diagram showing development of toxemia in pregnant subject O. and efficacy of hypnosuggestive therapy.

1—frequency of vomiting in 24 hours; 2—patient's condition. Arrows indicate sessions of hypnosuggestive therapy.

3. Patient K., 34 years old, is gravid for the eighth time, her first three pregnancies having been interrupted because of vomiting. Medical abortion failed to put an end to the vomiting. In view of the fact that all symptoms of toxemia persisted for 10 days, psychotherapy was considered necessary. Suggestions made during suggested sleep of medium intensity eliminated the vomiting reactions and the entire concomitant syndrome (Figure 88). It

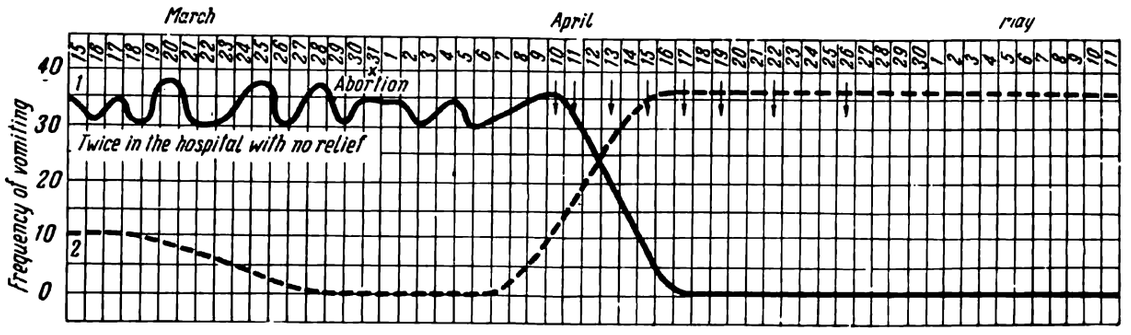

Fig. 88. Diagram showing development of toxemia in pregnant subject K. and efficacy of hypnosuggestive therapy.

1—frequency of vomiting in 24 hours; 2—patient's condition. Arrows indicate sessions of hypnosuggestive therapy.

was apparently a case of pathological inertness of a "toxicotic" dynamic pattern created in the cerebral cortex.

Mention should be made of the fact that during a pregnant patient's suggested sleep it is also possible to do dental work and to extract teeth.

It will be noted that gynaecologists are still far from giving sufficient consideration to the functional psychogenic disorders. In this respect they lag behind the obstetricians, though V. Snegiryov, a well-known Russian gynaecologist, was the first to speak, as early as the turn of the century, of

the significance of the psychic factor in gynaecological diseases and of the need for psychotherapeutic influences. In the 1920's V. Dik, a Moscow gynaecologist, attached great importance to psychogenic factors and psychotherapy in gynaecology. His practical experience in administering psychotherapy has shown that the development of certain diseases of the female genitalia are, in large measure, psychogenic in character.

Since our experience in this field is limited, we shall confine ourselves to pointing out, by referring to other authors, that the following diseases may be psychogenic in nature: ovaralgia, vaginismus, menstrual disorders—dysmenorrhea, amenorrhea, menorrhagia, and metrorrhagia, as well as leukorrhea. In all these cases psychotherapy is the only correct method of treatment from the pathogenic point of view. Numerous observations made by P. Istomin, V. Varen, K. Knepler, and studies conducted by A. Nikolayev (1924), V. Dik (1925, 1927, 1929), V. Zdravomyslov (1930, 1936), V. Bakhtiarov (1930), and M. Vigdorovich (1938, 1949) may serve as an illustration.

As for *surgical gynaecology,* here, too, the method of verbal suggestion in the waking state and during suggested sleep can be used as in general surgery. Considerable experience has been accumulated with respect to hypnosuggestive analgesia in curettage of the uterus (M. Paikin and R. Shlifer, 1925; K. Kazachenko-Trirodov, 1925; V. Dik, 1927; L. Amfiteatrov, 1936; V. Zdravomyslov, 1938).

One frequently hears that there is no need for anaesthesia in "such negligible" surgical interference as curettage of the uterus cavity. On the basis of our observations we can say that *for many women this operation constitutes a serious somatic and psychic* trauma. To find proof of this it is only necessary to observe the patient directly after the operation and, especially, the state of her nervous system during the days that follow. We have encountered patients in whom serious neurotic states with predominating vegetative components were induced by just such curettages. The method of suggested analgesia is, no doubt, most suitable in this form of operation because it influences not only the patient's physical condition, but also her mind.

1. Patient K., 38 years old, had an *abrasio cavi uteri* which lasted 25 minutes, performed during suggested sleep. Stretching the narrow cervix of the uterus and retroflexion required a good deal of time and effort. The operation was successful in every respect. The patient felt no pain, usually very intense in these cases, slept calmly, made no movement and showed no corresponding reactions on the part of the pulse. Bleeding was slight. She had no recollection of the operation after awakening.

L. Amfiteatrov (1933) reports the wholesome effect of hypnosuggestive analgesia; he used this method in 256 cases of curettage, inducing the sleep and operating by himself. In 211 cases the operation was successfully performed during suggested sleep, in 23 with a preliminary injection of morphine, and in 22 under local anaesthesia.

The following is a case of hypnosuggestive therapy during the preoperative period.

2. Patient L., 28 years old, desired to have her pregnancy terminated (two previous terminations). She could not endure pain. She had reacted so violently during her first termination that, after inserting several dilators

into the cervical canal, the physician was unable to continue the operation and the patient was taken back to the ward. An attempt to finish the operation the following day also failed; general anaesthesia was therefore administered. During her second termination the patient fought with the nurses, upset the instruments, and fell off the table. The operation was therefore performed under general anaesthesia, the patient tolerating it with difficulty. At the thought or mention of the third termination the patient became excited. Five preliminary sessions of verbal suggestion were conducted on 5 consecutive days.

The patient was able to compose herself, stopped thinking about the operation, discussed it calmly, and was no longer afraid of it. Suggested sleep was induced while the patient was on the operating table. She did not react to the insertion of the instruments; 60 ml. of a 0.25 per cent novocaine solution was injected. She was calm during the operation and felt good after awakening. She commented later that she had heard and had been aware of everything, but had felt no pain and had been "totally indifferent to all that was going on."

L. Amfiteatrov who has accumulated a great deal of surgical data also confirms the opinion of individual surgeons that less blood is lost when hypnosuggestive anaesthesia is administered. He also points out that the uterus contracts better.

As for iatrogeny in gynaecology, it should be noted that gynaecological patients are really the most susceptible to iatrogenic disorders.

Gynaecologists and not infrequently physicians in other branches of medicine give voice to judgements and diagnoses which are categorical, frightening and serve only as psychic trauma to the patients.

"Who has crippled you like that?" asks the gynaecologist on finding a slight tear in the patient's cervix uteri. "You have a retroflexion of the uterus, don't you feel any pain in the small of the back?", etc. Whereas in the former case some patients may develop a reactive depression with a series of somatic complaints, in the latter cases the patient develops symptoms which correspond to the physician's words, viz., long-continued pains which the patient did not have before.

According to V. Dik (1927), physicians must be especially careful with the diagnosis of *gonorrhea* which is, for some women, truly a catastrophe, particularly since this diagnosis is not infrequently erroneous. The thought of gonorrhea takes such deep root in the woman, says V. Dik, "that it is sometimes easier to cure the actual gonorrhea in the sex organs than it is to drive the imaginary gonococci out of her mind."

One of our observations on a 25-year-old patient who suffered from psychogenic leucorrhea may serve as an illustration. Owing to inexperience a rural physician diagnosed her case as "gonorrhea" about the symptoms of which the patient had learned at a lecture.

Upset by this diagnosis she soon began to feel other symptoms which she had not experienced before: pain during micturition and frequent desire to urinate without any local changes or bacteriological indications. The patient suffered from an obsession about gonorrhea and its expected complications for 2 years, and only psychotherapy was able to help her.

We had the opportunity to observe a 26-year-old patient whom a gynaecologist had pronounced barren (deduced from the appearance of the

genitalia) in the following manner: "Well, sister, you may still be young, but you are a lost woman. Don't expect any children. Nobody and nothing will be able to help you!" The psychic trauma gave rise to a severe reactive depression with suicidal tendencies. Hypnosuggestive therapy eliminated the neurosis and restored the patient's mental balance.

For many women the problem of barrenness is a very painful problem and the form in which this diagnosis is presented to the patient is of paramount importance, especially since errors in diagnosis occur not infrequently.

CHILDREN'S DISEASES

The treatment of neurotic reactions in children by psychotherapy in the form of sessions of verbal suggestion during suggested sleep usually produces the same positive effect as it does in adults. We deem it necessary to dwell upon the question of hypnosuggestive therapy for adolescents because many physicians consider this method inexpedient since it presumably "weakens will-power and increases suggestibility in children and adolescents who are highly suggestible anyway."

Long-continued observations have led us to the conclusion that this is not so; that hypnosuggestive therapy in psychogenic neurotic (and also reactive psychotic) states in adolescents produces a rapid and permanent cure.

1. Yury P., 11 years old, fourth-grade pupil, was a quiet and even-tempered boy. Was brought to us by his mother who complained of his excessive irritability and irascibility, disobedience, rudeness, and mischievousness. If he does not have a chance to "respond" properly in his quarrels with other boys, he lapses into hysterics when he comes home: he throws himself on the floor, kicks with his arms and legs, throws things, smashes windows, and cries. He reacts in the same way when reproved by his mother whom he treats rudely. Sometimes he walks out of the house if rebuked by his mother despite the lateness of the hour. Upon returning home, if he sees that his mother is calm and pays no attention to him, he begins to throw about chairs, books, pillows, the mattress and whatever he finds on the table. During these outbursts he usually shouts: "I'll go away and won't come back!" Then after some distracting manoeuvres performed by his mother, he calms down, begins to cry, asks to be forgiven and kissed as proof of real forgiveness.

This "nervous state" of the child continued for about a year and a half, beginning after the boy returned from Khabarovsk where he had lived for a year. Before that he had been well and even-tempered. He had been taken to Khabarovsk under the following circumstances: seven years previously his father had gone to Khabarovsk under false pretences, remained there and married another woman. Yury, who loved his father very much, missed him greatly. One day, when his mother was in the hospital awaiting an operation, his father came with his other wife and took the boy with him (with the consent of his mother who was sure she was about to die).

However, the boy had a very hard time of it in Khabarovsk: he was left to himself, had no supervision, did very poorly at school, received no affection from either his stepmother or his father who was mostly away,

and when at home always drunk. The boy missed his mother, upon her recovery started corresponding with her and wanted to return to her. The mother came and took him back with her. Since then the boy has hated his father. He did very well at school (was among the best pupils) and was very well thought of.

Our diagnosis: reactive hysterical neurosis. Seven sessions of psychotherapy with the patient in a drowsy state were conducted over a period of 3 weeks. After the second session the mother began to notice an improvement; after the end of the treatment the boy changed beyond recognition: he became even-tempered, calm, courteous, tidy and manifested no further hysterical reactions. Positive catamnesis for 18 years.

Treatment resulted in complete restoration of his mental health.

The following observation may serve as a still more vivid proof of the importance of psychotherapy.

2. Patient K., 11 years old, was brought to us by her mother who complained of her excessive timidity and nervousness. The slightest sound (noise, paper rustling, or swaying of the curtains) drives the girl to distraction; she begins to tremble, turns pale and screams. Scarcely a night goes by without some fright which makes her cry out in her sleep. Recently she was particularly frightened by "some stealthy steps approaching from a distance" which kept her from sleeping. In addition to all this, she became absent-minded, began to have faith in feelings of foreboding, showed lack of industriousness and expressed constant fear for her mother's life. The mother could not leave her even for a few hours. Her condition was very painful to the girl and she insisted that her mother take her to "soothsayers" because she "wanted to be well and the doctors did not help."

The anamnesis given to us in written form by her mother revealed that the girl had a normal heredity and until the age of 5 was strong, healthy, excessively lively, mischievous and at the same time, very impressionable, had developed more rapidly than most children of her age, reacted rather maturely to everything around her, was keenly sensitive to the moods of adults, and was insistent in her demands. Her father and mother were teachers, away from home all day, the child being left to the care of sporadically employed nursemaids with a generally unknown background; the nursemaids frightened the girl with tales about "gypsies," "snakes," "devils," "gods," "fires," and "thieves." The nursemaids, whose educational and cultural levels were not very high, evidently frightened the very sprightly girl into obedience. The girl complained to her mother of these intimidations, which left imprints on her impressionable mind, and grew timid and fearful.

The patient remembered one fright in particular. She told her mother that the nursemaid had threatened that "god would come right away." Very shortly thereafter a black, naked man with a big beard stole in from the adjoining dark room, holding a bun in his hand. The "monster" crawled up to the cupboard, placed the bun inside the cupboard and crept back into the dark room. The girl related all this with a sense of overwhelming horror. Since that time she had been afraid of dark rooms and her sleep had been disturbed. It was later ascertained that the entire thing had been staged by the nursemaid.

Subsequently, after a number of somatic ailments, the girl began to eat and sleep poorly and grew pale; her caprices, timidity, fear, and, especially, nervousness increased enormously.

At that period her life became even more complicated since her paternal grandmother came to live in the family. The grandmother was a stern and malicious old woman harbouring many prejudices; she was prone to presentiments, and often intimidated children. She mistreated both her granddaughter and her daughter-in-law, inciting the girl against her mother. One day the old woman provoked the girl's mother to the point of hysterics and fainting. When the mother recovered consciousness, lying on the floor next to her was her daughter with a pale, distorted face and wild eyes. The girl was totally unresponsive and it was very difficult to bring her back to consciousness. Since then the patient began to follow her mother about convulsively holding on to the mother's dress. No sooner would the mother approach the clothes-rack or her coat than the girl would begin to scream. At night the girl had nightmares, hallucinations, and cried out in her sleep, even directly after she fell asleep.

The patient had been treated without success with bromides, valerian, and baths. She lost a great deal of weight, and the night terrors continued. She experienced fears of thieves, fires, witches, and death; but most of all she was tormented by fears about her mother. This period lasted 2 years. Seeing that treatment was of no use the mother stopped administering any medicines hoping that "time would cure her," a hope also expressed by the attending physician. At the age of 10 the girl began to sleep somewhat more restfully, but continued to follow her mother about. She did well at school throughout that period.

The patient followed her mother about for two years, at the end of which time she stayed with her other grandmother (maternal side) who loved children and had a quiet and skilful way with them. This grandmother saw to it that the girl began to get out into the fresh air by herself and to allow her mother to leave without following her. Over a period of half a year the girl appeared to be improving, but in the winter, following an attack of influenza, her condition changed for the worse. She cried out more frequently at night and moved continuously in her sleep. Her fears continued day and night and she slept with her mother for reassurance. Diagnosis: reactive hysterical neurosis.

The very first session of psychotherapy wrought noticeable improvement. The girl cried out less frequently at night, in the day-time she cried out with fright only twice in 4 days, and stopped "listening for steps." She enjoyed the sessions very much and counted the days and hours before the next session, stating she felt better after the sessions: "I was not afraid so much any more." After four sessions the girl lost all her fear of sounds and noises, began to sleep more deeply, and no longer cried out at night, waking up only about two times in 5 days. She no longer screamed, but called quietly for her mother. She became generally livelier, more cheerful, relatively calm, and less cranky.

After the ensuing 10 sessions (with the patient in a drowse) she began to sleep calmly at night, without nightmares or cries. She had no more fears, heard no "steps," could stay in the apartment alone for one and a half to two hours, entered a dark room without hesitation and was able to remain

there alone for some time. She permitted her mother to go out of the house, her sense of foreboding disappeared, she became less irritable and more tolerant. She had nightmares twice, but did not cry out or move in her sleep.

We wish to emphasize that children's night terrors are usually reactive, are determined by factors which frighten them and are manifested as pathological conditioned reflexes.

We have already discussed cases in which adults developed fears of funeral processions and of little black dogs, a phenomenon accounted for by psychic trauma sustained in childhood.

3. Patient B., 13 years old, is a very lively, capable, curious, and well-disciplined boy. In October 1942, the Germans killed his parents before his very eyes. The boy went through this tragic event without showing any pathological reactions. Later he worked in a factory, was capable and industrious. During the summer of 1946, he was in a Young Pioneer camp. After the parents visited the other children for the first time he developed episodes of a twilight state, during which he visualized the scene of his parents' murder, his sleep became disturbed and he grew irritable, disobedient, and pugnacious.

Diagnosis: reactive hysterical neurosis. Seven sessions of hypnosuggestive therapy were conducted. Mental equilibrium was restored after the fifth session and the boy became even-tempered and industrious again. In the last seven years he has been working in a factory and has been perfectly well.

4. Patient N., 12 years old, was brought to the psychoneurological dispensary of the Southern Railway in a state of psychic excitement and suffering from delusions of grandeur. He had taken sick 4 days previously during a flood. He was far from home when the floods came and nearly drowned. He was barely able to reach his house which was submerged in water up to the first floor. He was unable to find his parents. From that day on the boy was excited, mouthed absurdities and delusions of grandeur.

Hypnosuggestive therapy was instituted with suggestions made to the boy regarding a calm attitude to this experience. After a two-hour session he was given long (ten hours) suggested sleep which resulted in a considerable improvement of his general condition. His mental equilibrium, clarity of intellect, and sound nocturnal sleep were restored after the fourth session. Two more sessions of suggested rest cured him completely and his parents were able to take him home.

Two years after the flood he suffered from a pathological fear of cyclists lasting for a period of 6 months. Treatment in a nervous clinic was unsuccessful, but two sessions of hypnosuggestive therapy freed him from his phobia.

We see that in children's neurotic ailments treatment by verbal suggestion and long suggested sleep is quite as effective as in adults.

It should be remarked that children's reactive hyperkineses are also quite amenable to verbal influence both in the waking state and during suggested sleep. Large-scale observations conducted by us in association with psychiatrist A. Prusenko at the dispensary of the Ukrainian Psychoneurological Institute in 1926 on children with reactive-convulsive symptoms show that in these cases long suggested rest with corresponding verbal influence may produce beneficent results.

We have been able to convince ourselves repeatedly of the expedience of psychotherapeutic interference not only in psychogenic, but also in infectious *chorea.* We have successfully used psychotherapy with the patient in a hypnotic state (together with following long suggested sleep) as a symptomatic, auxiliary method of treatment. Both motor and psychic spheres were favourably influenced.

Enuresis in children can also be treated by verbal suggestion (both direct and indirect) on the conscious level and during suggested sleep—an observation pointed out by V. Bekhterev (1911). Zappert (1929) also mentioned treating enuresis by verbal suggestion.

As the observations by our collaborators have shown, the success of treating children is greatly influenced by the physician's appearance and by the environment in which the treatment is given. When placebos were administered it was noted that the therapeutic effect depended upon the various conditions under which the therapy was given. A diminished effect was obtained under ambulatory conditions with a trained nurse participating, the best effect was achieved at home (especially with the participation of a physician). This difference is apparently connected with the child's emotional state (Y. Yezersky, A. Ploticher, and A. Furmanov, 1930).

Observations conducted between 1928 and 1932 in the children's department of the dispensary of the Ukrainian Psychoneurological Institute, where individual and group hypnotherapy was successfully administered in cases of nocturnal and diurnal enureses, chorea, and hyperkinetic syndromes of "viral encephalitis," indicate the positive importance of psychotherapy in the waking state and during suggested sleep (observation by P. Epstein).

Hypnosuggestive therapy has been administered since 1948 in infectious chorea and in functional disorders of the nervous system in the children's department of the Central Psychoneurological Hospital of the Ministry of Railways. The personnel of the department consider it effective and deserving of attention. Choreic patients generally quieted down much more quickly than usual and their hyperkinesis noticeably diminished.

Mention should be made of observations conducted in this hospital's dispensary on a 14-year-old girl suffering from painful multiple myalgia which had developed acutely after a serious parental quarrel took place in her presence. As a result of nine sessions of hypnosuggestive therapy conducted under ambulatory conditions this painful syndrome was completely cured.

The medical personnel of the aforementioned department emphasize the high suggestibility of adolescents and the indubitable benefit accruing to children treated by suggested rest. N. Krasnogorsky (1951) is of the same opinion. According to him, physiological sleep exerts a powerful salubrious influence on the sick child and his nervous system. He believes that at this stage of the development of hypnotherapy in the pediatric clinic, physiological sleep, deepened and lengthened by physical and physiological stimuli, is of particular importance. Among these stimuli Krasnogorsky counts the verbal stimuli connected with sleep, as, for example, fairy-tales told about sleep, etc.

Neurotic states and reactive psychoses may be, as our data show, objects of psychotherapy both on the conscious level and in a suggested drowsy

state. Some pediatrists are afraid hypnosuggestive therapy may damage the "child's soul" and they display indecision and excessive caution in recommending administration of verbal suggestion during suggested sleep. Our observations lead us to conclude quite the contrary. We believe the pediatric clinic can make wider and bolder use of hypnosuggestive therapy, long suggested sleep being especially beneficial.

SKIN AND VENEREAL DISEASES

As it was emphasized by A. Polotebnov (1886), the "diseases developing as a result of disorders of the peripheral and central nervous system are nowhere to be observed with such ease, clarity, and vividness as in the skin."

The possibility of influencing the physiological processes in the skin by verbal suggestion has attracted the attention of Russian investigators since the 1890's, viz., the studies of A. Kozhevnikov (1895) and A. Tokarsky (1892). Similar studies were later conducted by K. Agajanyants (1904), V. Bekhterev (1911), and K. Platonov (1930) and his associates.

We were successful in removing the urticarial rash developed by occasional patients after eating strawberries, lobster, etc., by suggestion during suggested sleep. A. Kartamyshev (1942) observed that under the influence of suggestion during suggested sleep the intolerance for quinine and salvarsan manifesting itself in the form of a nettle-rash disappeared; after treatment, doses of these substances could be tolerated without any attendant phenomena.

An essential role in introducing the method of verbal suggestion into dermatological practice was recently played by two of A. Kartamyshev's monographs (1936 and 1942). This author was the first Soviet dermatologist to study systematically, in association with his collaborators, the problem of treating skin diseases by verbal suggestion. He cites numerous proofs of the possibility of successfully treating various eczemas, psoriasis, red flat ringworm, skin itch, nettle-rash, warts, circular alopecia, and salvarsan dermatitides, and arrives at the conclusion that it is necessary to make wide use of the method of verbal suggestion in dermatology.

A. Kartamyshev's observations show that it is possible to treat successfully by verbal suggestion some skin diseases unconditioned by psychic trauma as, for example, warts, psoriasis, eczema, and red flat ringworm. His data were subsequently corroborated by N. Bezyuk (1939) who, in addition, successfully treated other forms of dermatoses—condylomas, multiform erythema, nodular erythema, and pink ringworm. N. Bezyuk's study emphasizes the possibility of the successful use of indirect suggestion in the waking state for the treatment of dermatoses.

I. Pototsky and I. Zhukov (1953) are two other dermatologists who have been successfully and extensively administering hypnosuggestive therapy in skin diseases. In individual cases physicians in other branches of medicine have also used suggestive therapy with good results in some dermatoses. Thus, Y. Zakamennaya (1932), a psychoneurologist on our staff, completely removed flat and common warts in 10 adolescents, while A. Breslav removed eczemas of one year's duration by sessions of verbal

suggestion during suggested sleep. We have already cited the study of F. Tseikinskaya who cured alopecia areata by administering hypnosuggestive therapy, and the data of I. Murakhovskaya on the efficacious treatment of weeping eczema on the leg by sessions of verbal suggestion. In addition, Z. Kopil-Levina removed skin itch in toxemias of pregnancy by a single session of psychotherapy. Y. Dubnikov (1932) also points out the efficacy of hypnosuggestive therapy in treating eczema. N. Manoilov (1928) obtained a positive effect with 19 out of 23 patients with common and flat warts. Toxicotic dermatitides in pregnant women were successfully removed by verbal suggestion by obstetricians V. Zdravomyslov (1938) and M. Vigdorovich (1939).

We shall now dwell in somewhat greater detail on a case of serious weeping eczema described by A. Shcherbak and B. Maizel (1921) and amazing as to the results achieved by psychotherapy.

1. Patient N., 20 years old, suffering from eczema since childhood, was admitted to the Sechenov Institute of Physical Methods of Treatment with considerable exacerbation of her condition. The eczema had spread all over the body, including the face, weeping with exudation of a serous fluid (in some places with blood). The face became deformed, the shrinking of the facial skin hindering the patient from speaking and eating. Neither pharmacotherapy nor physiotherapy were of any avail and the patient in her distress attempted suicide.

Psychotherapy produced a rapid and positive effect, the eczema disappearing completely. It should be noted that no special suggestions concerning the eczema were made; it was only suggested to the patient, against a background of light suggested sleep during the sessions, that she "feel generally well."

The patient was presented at a medical conference. She was under observation for one and a half years and stayed well despite her very difficult living conditions.

2. Patient S., was referred for a consultation concerning a dyshidrotic eczema of the wrists from which he had suffered sporadically for 6 years. A careful history revealed that in 1945, while he was captain of a ship (during the Great Patriotic War), he sustained a serious psychic trauma after which he soon developed eczema on both hands, face, and trunk. In connection with the disease he was evacuated for hospital treatment. Upon recovery he was sent back to his ship where he immediately suffered a relapse.

Subsequently, the patient was hospitalized several times for treatment of his eczema which recurred each time he returned to the ship. As a result, the patient had to be transferred to an office where he did not have a single relapse for 3 years. But as soon as he was temporarily assigned to a ship his eczema recurred on the same body areas (observation by G. Andriasyan, 1952).

It can be affirmed that this patient developed eczema in accordance with the mechanism of a temporary bond and, consequently, the administration of psychotherapy was pathogenically correct.

As for venereology, psychotherapy may prove to be necessary here, too. Venereologists are acquainted with serious psychogenic neurotic states which develop as reactions to the infection with some venereal disease. The

mind suffers particularly intense trauma through syphilitic infection. There have been many cases in which this kind of reactive state continued for many years, becoming chronic, and in some patients ending in a severe depression leading to suicide.

Patients with obsessive-compulsive ideas of imaginary syphilis or gonorrhea not infrequently seek out venereologists. In these cases the obsession is usually very stubborn, especially in patients with an over-anxious character and an inert type of nervous system. Experience has shown that psychotherapy administered in the waking state or during suggested sleep may prove very beneficial. A reservation must, of course, be made that a positive result may be obtained only if the obsession is of a functional, psychogenic nature and develops in accordance with the physiological mechanism of suggestion or autosuggestion, i.e., is not a symptom of a progressive psychosis (schizophrenia, cyclophrenia). Impressionable, reticent, over-anxious people may develop a hypochondriacal syndrome; the patient is horrified at the idea that he has "already infected his relatives, his children," or he is haunted by the thought that his ailment "is already widely known," or, lastly, he feels that it has already entered the phase in which his face may become disfigured. The patient's anxiety for his future and that of his family assumes the nature of an obsession. Thus, a reactive neurotic state comes into being, the development of which ordinary hygiene propaganda is frequently unable to prevent or eliminate. In such cases even explanatory psychotherapy administered in the waking state frequently falls short of the goal. And only verbal suggestions in a suggested drowse or during suggested sleep may afford some patients real and rapid relief. G. Robustov lays special emphasis on the harm which not infrequently results from conversations the patients hold among themselves while waiting to see the doctor.

For a certain category of anxious and self-conscious patients the usual psychotherapeutic methods of influence are clearly inadequate, while the system of poorly thought-out lectures and group talks may even lead to a deepening of the psychogenic reaction. We must therefore use methods of individual psychotherapy taking into consideration not only the level of the patient's development and the nature of his anxieties, but also the degree of his reactivity, i.e., the functional state of the higher divisions of his nervous system. Whereas explanatory and reassuring psychotherapy practised by the venereologist himself may prove effective in a weakly pronounced reaction to a venereal infection, in more severe cases help must be given by a psychotherapist.

MEDICAL PRACTICE OF THE PHYSICIAN AT A HEALTH RESORT

Are we in need of psychotherapy at health resorts which are, in themselves, an over-all physiotherapeutic and psychotherapeutic factor? This is a question we have been asked time and again.

In answering this question we must say that we have had ample opportunity to convince ourselves that at each health resort, regardless of its purpose, there are certain categories of patients who need not only general psychotherapy in the form of reassurance, distraction, etc., but

also special, individual psychotherapy. Among such patients there may be some who are suffering from psychogenic neuroses or psychogenic functional disorders of certain internal organs mistakenly diagnosed as organic diseases. Because of an incorrect or inexact diagnosis made in the medical establishment at their place of residence these patients are repeatedly sent to the wrong health resorts without visible success in treatment. We must also remember the important circumstance that each patient with a somatic disease is frequently additionally burdened by neurotic factors conditioned by his main somatic ailment (somatogenic neurosis) in the form of a more or less serious psychogenic reaction.

The following is a series of observations made by us and our collaborators at sanatoriums and health resorts, which show that the accidental presence of a trained psychotherapist served to help patients in need of precisely this form of therapy.

1. May we remind the reader of one of the already cited observations: invalid K., who had been suffering for two and a half years from a severe post-contusional traumatic neurosis with "commanding" fits, had been unsuccessfully treated at sanatoriums in Pyatigorsk and Slavyansk and was cured by four sessions of hypnosuggestive therapy.

2. Patient P., 38 years old, was treated at the Feodosia health resort for a "severe form of neurasthenia with stubborn insomnia." On the fourth day of her stay at the health resort she was referred to us for a consultation about her constantly depressed state, introversion, and lack of appetite. She was very melancholic due to the sudden death of her child 4 months previously, had constant visual and auditory hallucinations which increased in the dark and on closing her eyes, slept fitfully, had nightmares and the ever-present sensation that her child was at her side at night. Owing to her reactive depressive-hallucinatory state and suicidal tendencies the question of referring her to a suitable hospital was raised. A session of hypnosuggestive therapy was conducted during the consultation. The patient proved very suggestible; composure, forgetfulness of her misfortune, resignation to the loss of her child, restoration of vital interests and efficiency, self-confidence and restful night sleep were suggested to her. The first session resulted in radical improvement, the entire complex of symptoms disappearing after the second session. The positive effect of the two sessions produced a strong impression on the medical and service personnel and, especially, on the patient's ward companions whom the patient had related her nightmares (she had dreamt of her child's illness and funeral). She felt well and was sociable as long as she stayed at the sanatorium. According to available information she continued well and efficient for a period of 8 years.

3. May we remind the reader of another 30-year-old patient who came to us with complaints of sexual impotence for which he had been treated unsuccessfully for 2 seasons by narzan baths, electrization, prostatic massage, etc. The first unsuccessful attempt at coitus engendered a fear of possible subsequent failure. He came to us one week before the end of his treatment at the health resort. We conducted six sessions of verbal suggestion with the patient in a drowsy state. Good physical health, total groundlessness of his fears and an ability to carry out coitus were suggested. The effect was positive.

4. We have already referred to a patient who had suffered from a gastrointestinal disorder in the form of "enterocolitis" for 4 months. His stay at the health resort afforded him no relief. The anamnesis revealed a connection between the "enterocolitis" and a distressing psychic trauma. Two sessions of verbal suggestion conducted by us with the patient in a light suggested drowse radically cured the ailment.

We have cited typical examples. Fortunately for these patients they were able quite accidentally to receive the necessary psychotherapeutic aid in the form of hypnosuggestive therapy at the health resort.

To show in what cases and in what direction psychotherapy may be administered under health resort or sanatorium conditions we shall take the liberty of citing a series of observations conducted by V. Kislov at the Pyatigorsk Sanatorium No. 4.

5. Patient A., 37 years old, was admitted to the sanatorium in a serious depression with the complaint of loss of interest in life and work. The patient stated that she worked "automatically," was quite indifferent to her mother and daughter, and had become sullen and reticent. Her sleep was disturbed, she woke up promptly at 1.30 every morning, fell asleep again several hours later and had nightmares. She had been sick for a year after the earthquake she had experienced in Ashkhabad. When it occurred, she was in a hospital. Mad with fear she ran home only to find the corpses of her husband, son, and brother under the ruins. Overcome with grief she fainted. Since then she woke up every night exactly at the time of the earthquake.

Psychotherapy during hypnotic sleep was administered with suggestions of forgetfulness of the misfortune and of restful nocturnal sleep. After the very first session the patient slept all night without awakening till 7 o'clock in the morning. She had no nightmares. Upon awakening she willingly underwent a balneological procedure which she had formerly rejected considering such treatment unnecessary. Seven sessions of verbal suggestion were conducted.

Improvement was marked with each session, balneotherapy and medical gymnastics consolidating the results obtained. At the end of the treatment her sleep was completely restored, she regained her interest in life and work, and was discharged in good condition.

6. In July 1949, patient R., 40 years old, was admitted to a sanatorium with various complaints. She had been operated on 5 times: her left tuberculous kidney had been removed, she had had an appendectomy, trepanation of the skull because of an otitis, and two laparotomies, one of which was necessitated by an extrauterine pregnancy. In 1941, she sustained a psychic trauma; in 1943, her skull was injured (accidentally hit by a stone) and she spent two and a half months in a hospital. She was seriously ill; loss of consciousness and speech, incontinence of urine, insomnia, continuous intense headaches, and partial loss of memory. Subsequently the patient became absent-minded, forgetful, reticent, and unable to do anything because of her headaches; she ceased to associate with people and lost all interest in everything (depressive state). Had been treated for many years without positive results. Physicians' examinations were always distressing because of the multiple pains increasing upon palpation in the region of the gallbladder, stomach, intestines and urinary

bladder, and accompanied by nausea and involuntary crying. Diagnoses: "cholecystitis," "solar plexitis," "cystitis," and "migraine." Finally the patient lost all faith in medicine and physicians and gave up all hope for recovery.

A carefully collected anamnesis and examination revealed a psychic trauma (her husband's infidelity) and instability of her somatopsychic state conditioned by her many serious operations. Deep sleep was induced after the very first interview and the patient slept for 20 minutes. Her multiple pains and her pathological urge to urinate were eliminated by verbal suggestion during her sleep. Upon awakening the patient stated she "could not believe it, but she had no pains at all." Her head felt light and fresh, while the constant sensation of pressure in her cranium had disappeared. Her subsequent night sleep was long and refreshing. The patient regained her mental equilibrium and willingly continued the treatments. Ten sessions of verbal suggestion were conducted to consolidate the results obtained; after the treatment the patient was discharged in good condition. Letters received from her showed that she had regained an interest in her family, had changed her attitude to her husband, had become a normal person at home and had developed an interest in life. A year later she came to the same sanatorium in a satisfactory condition to repeat the treatment and stated she had grown quite strong during the year and had had no relapses. In addition to balneological treatment, she was given 10 sessions of verbal suggestion again (for consolidation) after which she was discharged in good condition.

7. Patient S., 43 years old, had taken treatment in a Pyatigorsk sanatorium for phantom pains in the left thigh which had troubled him for several years. The pains increased on excitement and persisted at night. He was incapacitated, suffered from insomnia, and used narcotics.

After three sessions of verbal suggestion during suggested sleep the pains ceased and the patient regained his normal, calm night sleep. Towards the end of his stay at the sanatorium his health was restored and he left in good condition. Coming to the sanatorium for repetitive treatment 2 years later he reported that during those 2 years he had felt slight pain 2 or 3 times which had not interfered with his work; he felt and slept well.

8. Patient D., 42 years old, had fought in the battle for Stalingrad where she had sustained a general contusion and injury to the spine with persistent secondary symptoms of lumbosacral radiculitis (the disease was of 2 years' duration). The patient came to the Pyatigorsk sanatorium with an escort, was bedridden, and was carried to the balneological procedures on a stretcher. Owing to her intense lumbar pains, she could tolerate being in bed only in the *à la vache* position (both day and night) and frequently used narcotics (morphine and pantopon). Her nervous system was exhausted by the continuous pains and insomnia; the patient was extremely irritable and constantly cried. Since physio- and pharmacotherapy were of no avail, she was referred for psychotherapy.

An extensive anamnestic interview was followed by symptomatic psychotherapy to relieve the pain and insomnia. During the patient's suggested drowsy state, it was suggested to her: "Your past no longer worries you, you have no pains, you feel well, you can walk without help and are sure you will soon recover." After the session the patient no

longer complained of acute pain, began to take care of herself, to walk about the ward and to lie in bed in the normal position. In addition, she started taking medical gymnastics and massage, something she had formerly categorically rejected. Upon termination of the course of sanatorium treatment she left on her own in good condition, her pains had ceased, her sleep and normal efficiency were restored. During the next 2 years the patient came to the sanatorium periodically to consolidate the results of the treatment.

9. Patient M., 37 years old, was admitted to a Pyatigorsk sanatorium from Tyumen suffering from a protracted and intense uterine haemorrhage. The anamnesis included a severe psychic trauma—the sudden death of her husband. The patient's specified time in the sanatorium was over, but her condition would not permit her to get out of bed since each attempt to do so increased the haemorrhage. Corresponding verbal suggestion was administered during a suggested drowsy state. After the very first session of psychotherapy the haemorrhage stopped on the same day, the patient began to get out of bed and walk about the ward; three days later she left for Tyumen on her own. A letter received from her confirmed that she had arrived safely, was well and had gone to work. Positive catamnesis for one year with no relapses (according to her letter dated one year later).

Cases of successful administration of psychotherapy in phantom pain, radiculitis, menorrhagia, etc., occurring in the practice of a health resort physician are far from rare. The health resort physician should therefore be familiar with the methods of psychotherapy which are quite easily mastered.

V. Kislov (1947, 1952) was the first to make extensive use at health resorts of psychotherapy in the waking state and during suggested sleep. His many years of health resort and sanatorium experience indicate that a combination of balneotherapy and psychotherapy is very valuable. Kislov's data brilliantly illustrate the invaluable benefit derived from psychotherapy not only in neuroses, but also as an auxiliary method in organic diseases of the nervous and other systems of the organism. In addition to individual psychotherapy, he organized a group "hypnotarium."

Mention has already been made that psychotherapy was successfully used in some skin diseases by dermatologist I. Pototsky and his assistant I. Zhukov (1953) in the Khosta dermatological sanatorium (Sochi-Matsesta). Their observations on the role of psychotherapy under health resort and sanatorium conditions coincide with those made by V. Kislov. These authors believe that suggestive therapy (after ascertaining the underlying psychic trauma) added to the complex of the health resort and sanatorium factors is a valuable form of treatment. Headaches and depression disappeared, appetite, sleep, etc., improved simultaneously with the disappearance of the skin diseases. According to their point of view there is every indication for extensive introduction of the methods of psychotherapy into health resort practice.

Internist A. Tyulenev (1930) recognized the positive aspects of psychotherapy in treating internal diseases and recommended the use of psychotherapy at health resorts as far back as 25 years ago. In connection with his recent observations (1952) he came to the conclusion that "psychotherapy increased the efficacy of health resort treatment and could become

an important method of treatments at health resorts." D. Smirnov, a Russian internist with many years of experience, also indicates the expedience of systematic use of psychotherapy at health resorts.

The introduction of psychotherapy into the practice of the health resort physician is entirely justified by the results achieved. As a matter of fact, the rapidity with which a lasting therapeutic effect is obtained in a number of cases is astounding. It is no mere accident that all the aforementioned authors arrived at the same conclusion, namely, that psychotherapy combined with balneotherapy expedites the process of treatment and recovery.

We believe that psychotherapy must not be a casual affair, but must form an organic part of the system of therapeutic measures practised at health resorts.

PRACTICE OF DISTRICT PHYSICIAN

The dispensary observations cited above show wide opportunities for the use of psychotherapy not only by qualified psychotherapists, but also by physicians of all other branches of medicine.

Life itself demands that physicians, who have but a general medical training, and who are beginning work in outlying district hospitals, should use psychoprophylaxis and psychotherapy, when need arises.

The methods of both minor and symptomatic psychotherapy are generally simple and accessible to any physician. Verbal suggestion administered both in the waking state and during suggested sleep is particularly suitable and corresponds closely to the conditions of life itself.

The district physician works under somewhat special conditions. He encounters most frequently the incipient stages of neurosis before complications set in.

1. Rural physician A. Knepler successfully administered verbal suggestion in a case of extraordinarily acute menorrhagia which threatened the patient's life and could not be stopped by any other means at his disposal.

Inducing a state of hypnotic sleep in the patient and administering corresponding verbal suggestion he was able to stop the menorrhagia completely.

Using psychotherapy in a district hospital in one of the Donets Basin districts, V. Kislov (1929) was able to deal not only with reactive neurotic states and vegetative neuroses with internal organic symptoms, but also with serious reactive psychotic states. He has described cases in which the necessity for a major surgical operation was obviated by the beneficial influence of verbal suggestion during suggested sleep. Many patients with reactive psychoses and hallucinatory-delusional states did not require admission to psychiatric hospitals only because it was possible by means of 2 to 6 sessions of verbal suggestion during suggested sleep to alter their attitudes to their own psychic trauma and to restore their health and efficiency. The following are examples from V. Kislov's practice.

2. Patient I., 39 years old, complained of a serious depression, excessive irritability, pains in the precordial area, and lack of appetite. The patient had been in this condition for 2 months, resistant to all forms of treatment. It was discovered that she had sustained a grave psychic trauma: her

husband, in a state of pathological intoxication, had raped their grown-up daughter. Two sessions of motivated verbal suggestion conducted with the patient in a drowsy state served to terminate her neurotic state. Her neuropsychic equilibrium was subsequently firmly re-established.

3. Patient P., 40 years old, was referred by a district medical inspector to a psychiatric hospital. During the examination, the patient was sullen, silent and hid behind the back of his brother who had accompanied him; upon the physician's attempt to examine him he crawled under the table. He had taken sick 3 months previously after being attacked by robbers in a forest. Since then he was disoriented, feared people, rejected food, cried, and suffered from insomnia.

Because of the clear psychic trauma the patient was not admitted to a psychiatric hospital, but was given six sessions of verbal suggestion with the patient in a drowsy state. The improvement in his condition was noticeable from the very first session. The patient came to the last session without his brother and stated he felt he had recovered.

4. Patient Y., 43 years old, was admitted complaining of extreme irritability, poor sleep, and "his wife's infidelity which he personally observed." According to his wife, he had been irritable in recent months, irascible, suspected her of infidelity, followed her about, considered every man her lover, watched her intently in the evenings, peered through the windows ("the lover was supposed to signal through the window") and scrutinized his wife's every movement since he thought she was "signalling to her lover." He suspected her of "living with the evil one." Frequently left work ahead of time to see if she was at home. In the previous month he had stopped work altogether, staying at home constantly and watching every step made by his wife. Slept with an axe near at hand, threatened to kill his wife if she left him, and worried his wife inordinately by questioning her about her infidelity. A railway physician referred him to the psychiatric clinic. His ailment had developed after one of his friends once jokingly said that their roomer had fallen in love with his wife. He believed it, flared up, drove the roomer out of the house on the very same day and since then "life had been a hell." Before his ailment the patient had lived very amicably with his wife for 20 years.

Three sessions of hypnosuggestive therapy with subsequent suggested rest provided a complete cure. The patient resumed work; he was under observation for 8 months and had no relapses.

5. Patient S., 38 years old, sustained minor burns in a railway accident and was hospitalized at station Birzula. He gradually developed symptoms of a serious neurotic state: excessive irritability, general tremor, and stubborn insomnia. Was referred to the Institute of Physical Methods of Treatment in Odessa, but after a two months' stay returned with negligible (according to the patient, about 10 per cent) improvement. Hospitalized in Birzula for the second time with a complex of grave neurotic symptoms. The patient suffered from unusually excessive hyperhidrosis which greatly increased upon excitement, especially when he was questioned concerning his ailment: sweat streamed down his forehead and his underwear moistened by sweat, stuck to his back and limbs. He suffered from total lack of appetite, slept between one and one and a half hours every night and was quite constipated. Visual pseudohallucinations: on shutting his

eyes the patient saw the picture of his railway accident and other episodes of that day. His attempts to approach a locomotive or railway tracks provoked indescribable fear, tremor, and increased perspiration (observation by V. Petrova).

Hypnosuggestive therapy was administered. The patient fell quickly into a deep sleep during the very first session. He slept soundly all night following the session and had a hearty appetite the next day. Subsequently, he began to feel generally well, the hyperhidrosis and constipation disappeared, and sleep was restored. It was somewhat harder to remove the fear of railway trains or tracks. The patient was discharged as fit for work after a two-week course of psychotherapy.

V. Kislov's graduate thesis shows that he successfully administered psychotherapy in various departments of the hospital at which he worked, relieving insomnia and pain in somatic patients, producing anaesthesia in minor surgical operations, reassuring patients during the pre-operative period, practising painless childbirth, etc. He subsequently used psychotherapy in his health resort practice in Pyatigorsk.

In discussing the practice of psychotherapy by physicians in outlying districts, we are able to cite quite a few analogous observations. The letters we receive from various parts of the Soviet Union show that psychotherapy is successfully used by many physicians (A. Ganiyev, Baku; A. Troshin and N. Karpova, Sverdlovsk; V. Shapiro, Serpukhov; Candidate of Medical Sciences Z. Kopil-Levina, Novosibirsk; Candidate of Medical Sciences S. Yoffe, Lvov; I. Mezin, Stanislav; I. Vish, Tambov; I. Pilipenko, Sakhalin). The materials they send to us indicate the possibilities for uncommonly effective use of the methods of psychotherapy by physicians in outlying districts, undertaken, in most cases, on their own initiative.

The district physician has many opportunities to organize psychotherapeutic aid locally. Thus, M. Vigdorovich told us that during 1941-1944, when he found himself in a village after evacuation from Leningrad, he managed to do extensive and interesting work. In addition to psychoprophylaxis in childbirth he practised psychotherapy in ailments provoked by psychic trauma (war-time experiences). Besides, his observations have shown that psychic traumatization also plays a considerable part in the development of gastrointestinal dystrophy. He was able to treat this type of patients successfully by hypnosuggestive therapy.

Thus, many physicians working in various regions and districts of the country are persisting in their attempts to put methods of psychotherapy into everyday practice. Important work in this connection is being done by the Saratov gynaecologist P. Podyapolsky and his followers V. Bakhtiarov in Sverdlovsk, D. Smirnov in Alushta, and our former associate I. Murakhovskaya (Yalta). Considerable research and practical therapeutic work in the psychotherapy of neuroses has been done by A. Gotsiridze (1929, 1936, 1945) in Tbilisi, in association with his collaborators Y. Ter-Ovakimov, I. Nikolava, N. Veshapeli, et al. All of them are pioneers in the great field of elaborating, substantiating, and employing the methods of psychotherapy and psychoprophylaxis in the different regions of our country.

CONCLUSION

It will be noted, first of all, that the laboratory and polyclinical material used in this monograph illustrates with apparently sufficient conviction the proposition advanced by I. Pavlov's school that the *word* is as real a conditioned stimulus as any other stimulus and, at the same time, "is more all-embracing than any of the others." By virtue of its singular physiological and social significance the verbal stimulus plays a unique part in the complex of man's higher nervous activity. The word replaces, reflects, and generalizes the meaning of the concrete stimuli coming from the external and internal environment. At the same time, it serves as an important means of creating a complex system of *abstract* ideas based on "word signalization" and has manifested general continuity throughout many centuries of the history of man.

The material presented in the preceding pages also supports the idea that all processes going on within the organism are actually reflected in man's cerebral cortex. The internal environment of the organism of man can therefore be influenced through the cerebral cortex. Under certain conditions verbal stimulus can call into existence a series of simple and complex physiological reactions. Moreover, depending on the meaning with which the word is charged, the word can evoke in the activity of the human organism a development of the most diverse positive, negative and even perverted reactions.

It is thus possible to influence water or carbohydrate metabolism, hunger and satiety, the secretions in the gastrointestinal tract, thermoregulation, vasomotor activity, trophic processes, etc. Lastly, we can provoke endocrine-vegetative changes, influence instinctive and emotional activity, and, evidently, even channel the immunifacient processes in the desired direction.

An analysis of our clinical observations reveals the possibility of effectively influencing the state and activity of the cortex and subcortex by means of the word. Our data testify to the considerable effectiveness of verbal influence exerted on patients both in the waking state and during suggested sleep, provided this influence is properly established on a sound pathogenic basis. Psychotherapy, in our opinion, leads to success in treating pathological syndromes in the overwhelming majority of cases.

What are the physiological mechanisms underlying psychotherapy and what makes them effective? I. Pavlov's physiological teachings provide us with an answer.

The cerebral cortex is an organ that establishes temporary bonds not only with the external world, but also with the processes occurring in the internal environment of the organism. It forms a "magnificent dynamic system" which not only establishes conditioned reflex bonds with all the systems, tissues and organs but also receives stimuli from the interoceptors located in all internal organs. This explains why verbal influence affects such a wide range of the most diverse physiological and biochemical processes going on within the human organism.

In addition, our clinical material has shown that the nature of the functioning of internal organs and systems actually depends on the tone of the cerebral cortex, the state of equilibrium of the basic cortical processes and, lastly, on the proper functional relationship between the cerebral cortex and the subcortical area. Thus, eliminating disorders of the functional state of the cerebral cortex leads to normalization of the activity of the affected internal organs and systems.

The emotional factor plays a very essential role in the effectiveness of psychotherapy. The adjacent subcortical area having to do with emotions constantly interacts with the cortex with the result that the adjacent subcortex sends powerful impulses to the cortex, charging it and maintaining its tone.

At the same time, as was found in I. Pavlov's laboratory, an active state in the cerebral hemispheres negatively inducts the subcortex, i.e., generally retards its activity, whereas a retarded, inhibited state in the hemispheres frees or positively inducts the subcortex and increases its general activity.

Consequently, by making use of suggested emotions, we can alter the tone of the cerebral cortex in either direction, i.e., raise or lower it. In other words, we have an opportunity to a certain extent to control the state of the cerebral cortex and, at the same time, the state of the entire organism.

Our clinical material thus warrants the conclusion that the battery of important therapeutic methods at the disposal of every physician must include psychotherapy. In coming to this conclusion we proceed from the proposition that there is and can be no purely somatic ailment unattended by some neurotic factors mainly in people of the weak or weakened type of nervous system. Any disease in itself creates in the patient a feeling of anxiety and uncertainty and throws him into a state of confusion as a result of the new and unknown processes taking place in his organism. Some cases of this type even show a pronounced neurotic state: indisposition, disturbed sleep, loss of appetite, depression, etc.

This alone denotes that elementary psychotherapy—reassurance, encouragement, explanation, and persuasion—must be used by every physician. And we agree with M. Chernorutsky's opinion (1946) that "whether the physician wants it or not, psychotherapy is his inseparable companion; it depends on the physician what sort of psychotherapy this will be."

The theory of the word, as well as that of the neuroses and the methods of treating them, must interest physicians in all branches of medicine.

Experience convincingly demonstrates that there is not a single branch of clinical medicine where psychotherapy cannot be used.

A closer acquaintance on the part of physicians in all branches of medicine with the teachings on neuroses is all the more essential since it is clear that the neuroses are very closely connected with the psychogenic dysfunctions of the various internal organs.

Visceral, vegetative or vegetative-endocrine syndromes not infrequently give rise to a picture of a "pseudo-organic" disease. In such cases the psychogenic factor must always be searched for. We must always remember that all somatic diseases may be attended by a weakening of the tone of the cerebral cortex, a situation which extraordinarily facilitates the development of a neurotic state under the influence of external or internal psychic trauma.

In treating a patient with pronounced visceral pathological symptoms it is incumbent upon every physician to take an active interest in establishing the possible psychogenesis of these symptoms. This is especially necessary since patients very frequently prove to be victims of unrecognized psychogenic visceral diseases and, consequently, require suitable pathogenically founded therapy.

We have already mentioned that referring patients with "pseudo-organic" diseases for the usual clinical or health resort treatment frequently fails to produce the expected therapeutic effect because such patients require strictly individualized psychotherapy rather than merely a change of environment or various health resort procedures.

Psychotherapy based on a consideration of the psychogenesis and somatogenesis of the functional disorders of the higher nervous activity presupposes not only a thoughtful and thoroughgoing respect for the patient's somatic state but also for his psychic experiences. In the process of diagnosing a somatic disease the physician dare not forget the possible psychogenic factors underlying it. In addition, he must keep in mind the psychogenic constituents arising as a reaction to the organic disease and, of course, the pathological neurotic symptoms which may have developed psychogenically quite independent of the patient's chief illness, greatly complicating the clinical picture of the organic disease.

Psychotherapy is also very important from the diagnostic point of view. The positive influence exerted by psychotherapy helps to establish the functional nature of the disease and thus aids in the differential diagnosis.

In addition, psychotherapy answers the question as to whether the neuroses are diseases with presumably "as yet undiscovered microstructural morphological changes" (Raymond, Strümpell). Our method of reproducing (revival of the traces) past complex neurotic states (Chapter XI) may also serve as proof of the functional nature of purely psychogenic neuroses.

We have observed quite a number of cases in which the functions of the internal organs and systems were fully restored by corresponding psychotherapy. These examples demonstrate that in such cases the pathology of the affected organs was provoked solely by a derangement in cortical regulation of their activity.

It is important to note that the considerable duration of a pathological state, sometimes many years, in no way hinders the rapid curative effect

of psychotherapy. In our cases, after the rapid restoration of the functions of the gastrointestinal tract, patients were immediately taken off their strict diets and put on ordinary diets without any ensuing complications.

Psychotherapy as a pathogenically based method of treating functional disorders of the higher nervous activity should reveal the specific conditions predisposing to and provoking the neurotic ailment, its pathological structure and dynamics, its aim is to remove the factors which functionally weakened the cerebral cortex and to contribute to raising the general tone of the cortex. It is, in addition, directed towards removing the pathological dynamic structures and replacing them by normal cortical relations. It must, in the final analysis, prophylactically prevent the development of future disorders.

Physiologically substantiated psychotherapy represents active interference on the part of the physician into the state of the patient's cortico-subcortical dynamics.

Psychotherapy is one of the most significant forms of the physician's therapeutic and prophylactic activity. Its role and significance require full recognition.

All methods of psychotherapy have been scientifically explained. Here we are referring to the elementary affirmative (imperative) suggestion with the patient's cerebral cortex in the waking or hypnotic state, the complex motivated influence by means of the word (persuasion, explanation) on the conscious level, during the patient's suggested drowse or sleep, and the extensive anamnestic analysis of the patient's higher nervous activity which forms an essential part of psychotherapy. These methods have the right to existence and use both individually and in combination.

The use of a particular method of psychotherapy requires an individual approach.

Generally, we use a combined method of psychotherapy. We begin with a more or less inclusive anamnestic interview and a series of such interviews with a view to ascertaining the nature of the disease. The anamnestic interview is an integral part of the psychotherapeutic approach to the patient, especially in neuroses. This interview establishes a positive contact between physician and patient, promotes confidence in the physician and, what is most important, makes the patient open and frank toward the physician.

The subsequent elements of combined psychotherapy are, successively enumerated, psychotherapy on the conscious level (explanation and persuasion) followed by suggestion under hypnosis for the purpose of consolidating what had been said to the patient on the conscious level and, lastly, deep suggested rest in the same hypnotic state.

One of the decisive elements of psychotherapy is the formulation of the verbal suggestion. It is up to the physician to be brief, concise and clear in his use of explanation, persuasion or suggestion—all based on the correct pathogenesis of the disease he is treating. A calm attitude on the part of the patient to the events that acted as psychic trauma should form the central kernel in formulating the suggestions made by the doctor. The action of the basic neurotizing factor is most effectively eliminated (inhibited) in this way. Suggested "deep rest" is also an important method

of therapeutic influence. It ensures the possibility of the most rapid restoration of the normal activity of the cerebral cortex.

It will be noted that we have never observed any harmful influence on the patient which could be ascribed to the method of hypnosuggestive therapy, presumably leading to the development of an "unstable personality," "slavish subordination," weakening of the will, increase in suggestibility, pathological urge for hypnosis, etc.

It should also be observed, in conclusion, that it has not been our aim to give an exhaustive account of all the problems of psychotherapy. We have aimed only at citing facts and their implications which may be of help in subsequent work in this direction.

At the same time we have tried to do all we could to substantiate properly the ways and means of psychotherapy and psychoprophylaxis and to show the efficacy of their use in therapeutic medicine.

We are clearly aware that any further successful development of the complicated problem of neuroses and their psychotherapy is possible only by sustained joint creative work of physiologists and clinicians carried out on the basis of the data furnished by the physiology of the higher nervous activity.

Supplement

WORKING DIAGRAM OF DEPTH OF SUGGESTED SLEEP

To determine the depth of suggested sleep we make use of the working diagram proposed by Y. Katkov (1941).

This author distinguishes three basic stages of the depth of suggested sleep, corresponding to the older diagrams of V. Bekhterev. He divides each of them into three degrees according to the physiological indices characteristic of each of them. Thus, nine degrees of the depth of suggested sleep are distinguished. Each of them has its distinguishing characteristics depending upon the extent to which the cerebral cortex is divided into sleeping and waking points.

All of this pertains to the nature of the activity of the various analysers and the conditions of interaction between the two signal systems and the subcortical area. The working scheme is interesting and has practical importance, particularly since it makes it possible to determine the degree of the subject's suggestibility, the extent to which the suggested sleep grows deeper in the subsequent sessions, the dependence of the efficacy of psychotherapy on the depth of suggested sleep, and, lastly, it permits the use of a unified scheme to determine the depth of suggested sleep in all cases.

First Stage

The first stage of hypnosis is characterized by a progressive decrease in the tone of the cerebral cortex. The altered relationship between the processes of excitation and inhibition creates the conditions for the irradiation of inhibition which begins to spread over the kinaesthetic analyser and the second signal system.

Second Stage

The tone of the cerebral cortex drops. A zone of rapport emerges against the background of the altered relationship between the processes of excitation and inhibition. The diffused inhibition shuts off or blots out the kinaesthetic system (catalepsy). In addition, irradiation of inhibition to the other analysers, primarily the cutaneous (spontaneous analgesia), is observed. The equalization phase emerges.

Third Stage

The zone of rapport is fully formed. The second signal system, except for the point of rapport, is shut off. The paradoxical phase develops. Ever greater "dissociation of the normal, more or less unified, work of the whole cerebral cortex" (I. Pavlov) takes place. There is amnesia after awakening.

FIRST DEGREE, FIRST STAGE (I_1)

The first degree of the first stage is characterized by an incipient weakening of the tone of the cerebral cortex and a subjective feeling of pleasant rest (it may be defined as the initial pre-hypnoid state).

Indices of the First Degree, First Stage

1. The subject experiences only a feeling of rest.
2. He feels no heaviness in the body (some note a very pleasant state of lightness).
3. Hears the surrounding sounds and controls his thoughts.
4. Retains all forms of sensibility.
5. Suggestion of motor reactions (movement of arm) easily effectuated.
6. Subject comes out of this state easily.

This degree may be characterized as rest with closed eyes (patient closes eyes on physician's request). Psychotherapy by the Bekhterev-Bernheim method (patient awake and at rest with eyes closed) is administered in this state.

SECOND DEGREE, FIRST STAGE (I_2)

The picture of a progressive drop in the tone of the cerebral cortex together with the inhibition of the kinaesthetic system becomes more clearly pronounced. During sleep induction the patient's eyes usually close gradually. The subject notes that he feels at rest, with a growing heaviness and fatigue in his body (patient frequently points to individual limbs).

Indices of the Second Degree, First Stage

1. The patient's eyes have closed spontaneously, but can be easily opened.
2. Swallowing movements are observed in some cases.
3. Touching the subject's arm immediately results in active normal tension in this arm (it suffices to lift the arm slightly to see that it tenses actively and actively returns to the former or some other position). This symptom is extraordinarily important for an objective determination of whether or not the muscles are relaxed, a condition specific of developing sleepiness, and serves as an index of the presence or absence of the incipient hypnotic state.
4. Suggestions of motor reactions are quite easily carried out, though the latent period is somewhat increased.
5. Subject hears sounds and actively perceives his surroundings.
6. Subject retains all forms of sensibility.
7. Subject easily comes out of this state ("shakes it off" as it were).

THIRD DEGREE, FIRST STAGE (I_3)

The tone of the cerebral cortex drops sharply. The altered relationship between the processes of excitation and inhibition create the conditions for the further irradiation of inhibition and the deeper depression of the kinaesthetic analyser and the second signal system.

Indices of the Third Degree, First Stage

1. Subject notes increasing drowsiness and sleepiness, sluggish thinking ("does not want to think").
2. Has sensation of extreme heaviness in the body. Muscles relax.
3. The carefully lifted arm drops flaccidly.
4. Subject cannot open his eyes or move his arms (if he manages to move them he seems to do so with difficulty).
5. Effectuation of motor suggestions is greatly impeded, the suggestions frequently failing to be effectuated.
6. To the question about how the subject feels the latter either replies slowly (long latent period) or keeps silent (speech inhibition).
7. Subject hears the surrounding sounds. It is important to remember that, when brought out of this state, the subject believes he could have come out of it himself (open his eyes, move his arms); as a rule, this does not occur ("he does not feel like it").

FIRST DEGREE, SECOND STAGE (II_1)

The second stage is characterized by distinct phenomena of irradiation of inhibition, the presence of symptoms of catalepsy and analgesia, and the appearance of "transitional states."

The first degree of the second stage is characterized by a drop in the tone of the cerebral cortex. Inhibition of the kinaesthetic analyser and of the second signal system becomes more clearly pronounced. Increasing symptoms of catalepsy are characteristic of the second stage.

Indices of the First Degree, Second Stage

1. Subject notes pronounced sleepiness ("feels an irresistible urge to sleep") and difficulties in movement.
2. Respiratory movements even out (respiration grows even and quiet).
3. Appearance of light catalepsy (lifted arm remains for a short time in the air and drops slowly by force of gravity; slight resistance on the part of the subject is felt if an attempt is made to expedite the dropping of the arm).
4. It is impossible to evoke suggested stereotype movements (for example, swinging of an arm resting on the elbow). The suggestion may be effectuated after a long latent period and insistent repetition.
5. Suggestions of motor reactions are not effectuated.
6. Subject hears surrounding sounds, but loses interest in them.

SECOND DEGREE, SECOND STAGE (II_2)

The second degree of the second stage is a deepening of the preceding state. Total inhibition of the kinaesthetic system (flexibilitas cerea). Inhibition of other analysers, the cutaneous in particular (spontaneous analgesia). More pronounced inhibition of the second signal system.

Indices of the Second Degree, Second Stage

1. Subject states that he slept (extreme sleepiness) and notes "constraint" of the motor sphere.
2. Flexibilitas cerea.
3. Weakening of cutaneous sensibility (spontaneous analgesia) occurs. The latter can be augmented considerably by suggestion.
4. Suggestions of motor reactions are effectuated, the latent period being shortened.
5. Slowly effectuated stereotyped movements make their appearance (automatic movement weakens and ceases soon after it has begun).
6. Suggested illusions are not effectuated.

THIRD DEGREE, SECOND STAGE (II_3)

The functional properties of the nerve cell change and phasic phenomena appear. The equalization phase emerges (the word and the actual stimulus seem to balance one another when the patient's eyes are closed, but reality prevails as soon as the eyes are opened). Inhibition of the second signal system is deepened (with the patient's eyes closed effectuation of suggested illusions begins).

Indices of the Third Degree, Second Stage

1. Subject notes total disappearance of his own thoughts and begins to hear only the hypnotist.
2. Tetanic catalepsy (the arm rebounds) is frequently observed.
3. Suggestions of both active motor reactions (slow, jerky movements) and passive motor reactions (inability to open the fist, move the arm) are well effectuated.
4. Stereotype (automatic) movements are well pronounced and manifest themselves for a long time.
5. With the patient's eyes closed, the effectuation of suggested illusions begins.
6. Suggested anaesthesia of the nasal mucosa is effectuated (using aromatic spirits of ammonia).

FIRST DEGREE, THIRD STAGE (III_1)

Prevalence of the first signal system manifests itself. With the patient's eyes closed, the illusions are fully effectuated and are easily evoked in all analysers except the visual and, in part, the auditory. Spontaneous catalepsy disappears (Platonov's sign is clearly present—lifted arm drops quickly).

Indices of the First Degree, Third Stage

1. Spontaneous catalepsy disappears.
2. With the patient's eyes closed, illusions are fully evoked (except visual and auditory).
3. Stimulations of the skin, nose, and tongue evoke hallucinations (in hidden trauma).
4. Sensations of hunger and thirst are produced.
5. No amnesia is manifested.
6. Suggestions of motor reactions of all forms are well effectuated (short latent period).

SECOND DEGREE, THIRD STAGE (III_2)

The second degree of the third stage is characterized by almost total inhibition of the second signal system. All positive hallucinations are evoked with the patient's eyes closed.

Indices of the Second Degree, Third Stage

1. Positive visual hallucinations are vividly effectuated ("catches butterflies with the eyes closed").
2. Opening of the patient's eyes destroys the hallucinations in some subjects and they frequently awaken.
3. Partial amnesia (subject recalls the session with difficulty) is present.
4. Suggestions of motor reactions of all forms (passive and active) are easily effectuated.

THIRD DEGREE, THIRD STAGE (III_3)

The third degree of the third stage is characterized by totally isolated rapport. The second signal system except the point of rapport is shut off. "Break-up of the normal, more or less unified, work of the whole cerebral cortex" (I. Pavlov) with amnesia after awakening. The word is stronger than the real stimulus.

Indices of the Third Degree, Third Stage

1. Positive and negative hallucinations of all types occur with the patient's eyes open.
2. Positive and negative hallucinations are effectuated post-hypnotically.
3. Effectuation of "incongruous" post-hypnotic suggestions is possible.
4. Total amnesia after awakening is experienced.
5. "Transformation" of age (transition to childish state) easily effectuated.
6. When patient opens his eyes they appear dull and moist.
7. It is possible to produce hypnosis with lightning speed.

HISTORY OF A CHILDBIRTH[1]

(Our first experiment with painless childbirth through suggestion)

Our first case of painless childbirth accomplished with the patient in a state of post-hypnotic suggestion was patient Z., a fourth-year medical student, highly aware of all of her sensations and capable of noting and describing them in detail. The history of this childbirth was written by the patient herself.

"As soon as I knew I was to have a baby I thought it would be well to be delivered under hypnosis. My husband agreed with me. We both said in jest that, even if I were to risk anything, it would still be worth while doing it for the sake of science, especially since I was a medical student. I decided to consult Professor P., tell him my intention and ask his advice.

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[1] K. Platonov and M. Shestopal, *Suggestion and Hypnosis*. Ukrainian State Publishing House, Russ. ed., 1925, p. 24.

"My pregnancy, begun in February, proceeded normally. For about a month and a half I had felt weak and nauseated, finding it hard to study. Suddenly all the symptoms vanished as if by magic and I felt perfectly well. It often occurred to me, 'What will the birth be like?'

"Although I was 32 years old, I was going to have my first child. Everything considered, it would not be easy. I remembered the recent deliveries of two of my friends who had had quite a hard time of it. Whenever I broached the subject my husband would invariably say half in jest, 'But you will be hypnotized.' Somehow my thoughts would involuntarily trail off, I would grow calm and give it no more thought. I visited Dr. S., who checked my status. He found everything perfectly normal. We left Kharkov for the summer, spending a month and a half in the country near Kharkov and one month in Yalta. We returned on September 5. I expected the baby at the end of October or the beginning of November.

"Upon my return I decided to start carrying out my plan regarding painless childbirth. First, I talked my intention over with Dr. S. who took a lively interest in it saying he would gladly give me the opportunity of conducting the trial in his hospital. During my pregnancy I had told many of my friends of my desire to be hypnotized hardly ever meeting with any sympathy. Everyone thought me extremely unreasonable. They said, 'The field is so obscure,' 'You don't know how this is likely to affect the child,' 'What if the process of childbirth is impeded?' 'Labour will be weaker,' etc. Before going to Professor P., I decided to consult other physicians competent in their own fields. I wanted to know the opinions of specialists on the possible influence of hypnosis on the foetus, the process of childbirth, etc. The psychiatrist, Doctor U., evaded the questions by saying that he did not know very much about hypnosis, that he belonged to the German school which regarded this question sceptically and was therefore unable to say anything for or against the experiment. Nor did gynaecologist, Dr. M., venture any opinion on the way hypnosis might affect the process of parturition and the child because he said he did not know enough about the subject. But despite the almost unanimous disapproval of my intention or, at best, the sceptical view of it, I made up my mind to consult Professor P. just the same. The first question the professor asked me when I told him of my desire to bear my baby under hypnosis was: 'What for? Are you very much afraid of childbirth?' I told him I was guided solely by a desire to conduct a scientific experiment. To my question concerning the risk to the child he replied that there would be no unfavourable effect. The professor readily agreed to fall in with the plan, but only on the condition that I prove a suitable subject for hypnosis, a thing which he could determine at the first session and for which he appointed the time right there and then. I had never been hypnotized before.

"I looked forward to the session with great interest and inner composure. It consisted in the following: the professor asked me to lie down on a couch, wound up a metronome, and told me to fix my eyes on the shiny head of his medical hammer. Bringing the hammer close to my eyes he said, 'You are sleepy, your lids are growing heavy, you are getting drowsy, you are falling asleep, you are asleep.' As a matter of fact, I closed my eyes involuntarily with a feeling of being unable to keep them open. My breathing deepened spontaneously. At the same time I heard the beats of the metronome, the professor's steps and his words: 'You can fall fast asleep, sleep, your arms and legs are growing heavy, you now feel very well and at ease,' and true enough, I felt unusually well—composed and restful. The professor went on: 'Nothing worries you, you are not afraid of your coming delivery, it will be normal, very easy and painless, you regard it perfectly calmly. You are very happy about the coming event. Sleep fast. You will sleep deeply with each session and will increasingly agree to my suggestions—something which you yourself want.' I felt I wanted to fall asleep altogether, but the beats of the metronome, the professor's steps and sometimes the movement of the foetus prevented it. 'You are not aware of the couch on which you are lying because you feel so well, so at ease, so pleasant and so good.' In my mind I repeated: 'I feel well, at ease, pleasant and good,' and really I had a feeling of unusual ease. The session lasted 20 minutes. 'Now, when I count up to three you must wake up; when I say "three" you will wake up and will feel very well, rested and cheerful.' I opened my eyes and got up from the couch as if nothing had happened.

"The professor thought I was amenable to hypnosis and decided to continue the experiment believing it necessary to train me before childbirth by conducting several such sessions. I observed myself very closely to see if there were any aftereffects, if

the sessions had in any way affected me or the foetus, but could detect absolutely nothing, save the fact that, while waiting for a tram after I had left the professor and on my way home, I yawned a few times. But my head did not feel heavy nor did I feel any weakness. I noticed no difference in the movements of the foetus. I was perfectly even-tempered and slept very well at night.

"The second session and the following sessions (there were altogether eight of them, one every two or three days) roughly repeated the first. The professor induced a drowsy state in me at first by having my eyes fixed on his hammer and, after two sessions, by words uttered as a command: 'Sleep, you are sleepy, sleep,' and then very calmly, while pacing the room, 'Yours will be a painless childbirth. Essentially this physiological act must not be painful, but fear of it has long since been impressed upon women. You will not be afraid, your labour will be intense but as it should be, and you will have no pain. Nothing worries you, you feel well at ease, pleasant and good.' I never managed to fall asleep so deeply as to lose consciousness. During the last sessions the drowsy state was much deeper than during the first ones, but desultory thoughts never left me. At the words 'sleep more deeply' and when my forehead and hair were stroked lightly my breathing grew very deep and there were moments when sleep seemed to bind me, but then the professor's voice or some sounds (steps) roused my attention.

"My thoughts often turned to what was happening to me, and I tried to analyse the phenomena. For example, I thought: 'How curious, here I am, not asleep, but breathing like a person who is fast asleep. This sensation cannot be usually experienced,' or 'How amazing! Much as I may like to I cannot open my eyes, or when I hear the professor's words "you feel very good now" I seem to look inside myself and find that I really do feel very good.' Once, it was my third or fourth visit to the professor, while I was awaiting my turn in the reception room I heard the beats of the metronome and noticed to my surprise that I felt drowsy, that my head dropped onto my arms and I dozed off just as I did during the sessions. When a patient came out and told me I could go in I got up with great difficulty and holding on to the walls gropingly made a few steps to the professor's office where with the words 'I am quite asleep' I dropped onto the couch and, at the professor's request, sank into my usual drowse. During the last sessions the metronome was not wound up. Once or twice the professor tried to suggest to me a loss of cutaneous sensitivity testing my sensations with a small toothed wheel and a pin. In accordance with his command I did not feel the pin. I was also similarly surprised when he once told me I would be unable to raise my arm because it had grown so heavy, and try as I would I really could not raise it. A desire to yawn persisted only until after the second session and was not present later. As before, I could observe no morbid manifestations after the sessions. And they were hardly to be expected: everything was so simple and natural, nothing compulsory, nothing forced.

"Of late I have been in an excellent mood (I remember saying to the professor once, I wondered if I should ascribe it to his suggestion, but I was in a surprisingly calm and pleasant mood). I seemed to be overfilled with calm and joy and did not have a single unpleasant thought. Some of my friends noticed I had a 'blissful' expression on my face. It never even occurred to me that childbirth was something fearful. This seemed to be screened by something which made it impossible to see beyond. I just felt good, whereas the childbirth ... here I stopped and could not think beyond. I cannot say I was sure the childbirth would be painless; my ability to think and feel anything about it was simply atrophied.

"I noted the following detail: formerly when I visited Dr. S. for a consultation or merely happened to go past his hospital where I was to give birth I somehow felt frightened and wondered, 'It is going to be here ... what will it be like?' Now I came to see him three weeks before parturition and did not think anything and even felt happy. I was surprised to find I was not at all afraid. Nor did it ever occur to me that I was already under the influence of suggestion because my condition appeared perfectly natural to me. I thought of the sessions as a curious experiment wondering what their effect would be on childbirth.

"Till the very last day I did all the necessary housework and tried to do as much as possible at the institute, going to some lectures and taking part in practice work.

"On Monday, October 29, at about 9 o'clock in the evening, while my husband and I were having tea I seemed to feel a pang. Something contracted, as it were, inside. I told my husband about it and we both laughed, saying it would be good if I always

felt that way and had no pains. But I did not take these sensations seriously. I could not conceive that one could have pangs without any painful sensations whatsoever. I had been told that it all began with pains in the small of the back or in the belly. I had these 'pangs' about twice more before bedtime, but then slept very soundly all night, as usual. The sensations recurred in the morning, but I continued to attach no importance to them since the element of pain was entirely absent. I merely felt a spasm in my belly which I ascribed to something in the intestines. My husband and I continued to joke: What if this were labour and it would all be over before I had a chance to go to the hospital? Perhaps it was the effect of hypnosis? But we were very far from thinking it 'could be' really so.

"I went to see Professor P. On the way I had a feeling there was something wrong just the same—I felt heavy and somewhat weak. Besides, something contracted inside from time to time so that I stopped instinctively.

"The session went off as usual. In a state of complete calm and well-being I heard the familiar: 'You feel well at ease, pleasant and good, your labour will even be pleasant ... your childbirth will be painless.'

"When the professor asked me at the end of the session to come again in two days I told him I was afraid I had come for the last time because I felt something was wrong. We agreed that I should let him know when I went to the hospital.

"The pangs continued as before without any sensation of pain; I called them pangs in jest because it seemed strange to consider them labour pains.

"On that day I had a lot to do about the house—wood-cutters were sawing wood and carrying it in all day till dark, the maid was busy with the wash, while I was on my feet all day long and so busy with house-cleaning that I did not sit down even once. My husband came home from work and I told him that my pangs had grown more frequent, sometimes occurring every 10 or 15 minutes, sometimes at longer intervals, but still consisting of only a sensation of spasm or an urge to micturate. Objectively, the abdominal wall felt harder. Since the abdomen was not only not painful, but not even a bit sensitive we disregarded these phenomena. I remembered the pangs my friend had had; real pains had begun two weeks before childbirth. The doctor had said it was the preparatory period. I was ready to believe it was also the beginning of my preparatory period which would, of course, last a long time. But my neighbour insisted that I go to the doctor. I decided to take a bath and then perhaps go. After the bath, however, I did not feel like going because the weather was bad—it was raining; my husband and I decided that should anything serious occur we would go to the hospital at night.

"The discharge continued, the urge to micturate and my pangs grew more frequent. I went to bed in high spirits. What if it were really time to go to the hospital? I did not feel in the least afraid or worried. Deep down in my heart I was so very calm. I said to myself quite sincerely: 'I hope it comes in the morning so I can have one more good night's sleep; I shall have many a sleepless night with the baby....' My husband and I timed my pangs: every 5, 7 or sometimes 10 minutes I would say, 'Here it goes again.' The sensation persisted for a minute or two and I would then say, 'It let go again.' And we continued jesting, 'If this is the effect of hypnosis it is really remarkable!' But I could not seriously think that hypnosis would already have an effect. For some reason or other I was under the impression that, when I was already in pain at the hospital, the professor would come, induce my usual drowsy state and suggest to me that it did not hurt.

"I would doze off, but at first would awaken quite often. The pangs continued. Towards 3 o'clock they grew more frequent and more intense (still without any pain sensations whatever), the amount of mucous discharge abruptly increased and I had a desire to micturate very frequently.

"In the morning (it was October 31) my school-mate S., former obstetrical nurse and midwife, came to see me. I told her what was happening to me and she said it was probably the beginning of labour. She expressed surprise that there was no pain. I walked about chattering and only from time to time reported with a cheerful face, 'There it goes again.'

"At 3 o'clock in the afternoon my husband and I walked to the doctor's. The weather was fine and I enjoyed the walk to the hospital. On the way (15 to 20 minutes' walk) I stopped 3 times—the notorious pangs. I was in an excellent mood—calm and gay—and did not feel like going indoors. Dr. S. examined me and said that labour was already under way, the cervix had opened by one and a half fingers, had

shortened and its edges had grown thin, i.e., that I had already done a good deal of work. Since I felt so good he would allow me, if I desired, to go home for about two hours, but that at the end of the 2 hours I had to return to the hospital. Of course, I rejoiced at the chance of walking some more and being out in the open for another couple of hours. I went to see my apartment neighbour (wife of Professor M.) and told her about my case. Engaged in conversation we forgot the time and I spent an hour and a half sitting and chatting on her little couch. From time to time I would say, 'Here it goes again.' I noticed that the pangs had grown more intense and each pang lasted longer, but was as completely painless as before. She was surprised and told me what pains she had suffered when her little daughter was born. Now I was also inclined to think that the professor's suggestion was apparently playing some part here. It felt so pleasant, interesting, and gay to observe myself. I was still visiting when my husband came home. We had dinner and drove to the hospital taking some of my things along. I was in the best possible mood. It was a quiet and warm day; I felt so cozy sitting by my husband's side, my heart rejoiced and I repeated several times, 'I feel wonderfully well.' I was in such a festive and joyous mood. (I want to say at this point, that, on my way back from the hospital with my child, seated in a similar vehicle, I was very happy and recalled that I had experienced this feeling once before, on my way to the hospital. And I said to my husband several times, 'How strange that I should have exactly the same feeling now as I did on the way to the hospital.')

"At the hospital, after the customary preparations (wash and change of underwear, etc.), they put me to bed. It was 7 o'clock in the evening. My pangs continued and grew more intense. I timed them; they came on every 4 or 5 minutes. Now I was certain that labour had started, but felt no pain at all. The doctor came to see me and the bag of waters broke just when he was there.

"The doctor assigned a midwife to me. We talked about one thing and another and from time to time I said to her, 'Here it goes again.' She sat by my side and asked me to tell her each time I had a pang. 'Usually women scream or moan, or we can at least see by their faces they are having pain. I cannot see anything on your face and yet I must watch you for pain every time.'

"I was in bed, in fine spirits, and at each pang the professor's words immediately and involuntarily came to my mind: 'You feel well at ease, pleasant and good.' At about half past eight the professor suddenly walked into the room. I was very happy to see him and at once perceived an aroma of cheer, calm, and joy. He came over and said, 'Everything is fine and just the way it should be; you will have no pain, your labour will be easy, keep calm. You feel very well now.' He went upstairs to see the obstetrician. I stayed in bed, covered with a blanket, I was warm and calm, and did not feel like talking any more. I was drowsy. I only kept repeating to the midwife, 'Here it goes again,' and she continued to watch me. She then said to me that pressure on the colon had apparently started and asked me to change to the high table used for women in labour. There she would be in a better position to watch me. I walked over and climbed on it without trouble. I kept observing myself. 'How strange,' I thought, 'I am not a bit afraid.' The pangs grew more insistent, more frequent and lasted longer. With the midwife's permission I turned on my left side, pulled the blanket over myself and lay there observing my own sensations. 'Here it goes again, but it does not hurt at all.' The obstetrician and the professor came in. The obstetrician took a look and found that I was doing fine, the labour was progressing in full swing.

"The professor stroked my forehead and kept saying, 'Everything is fine and you feel very well. You are happy, you have no pains and will have none; you are becoming drowsy.' Then they left again. In the intervals between the pangs I felt very sleepy. Sometimes, when a pang began, I caught myself with the thought that I had just been sleeping.

"At about midnight I began to feel ill for the first time since my pangs had begun. There was a dull, gnawing and somewhat muffled pain in the sacrum and the sides. The pain was quite tolerable, however. Still I asked the midwife to tell the professor that I had developed some sensitivity. The doctor and the professor came at once. The doctor said it was apparently the most painful moment—the foetus was pressing on the sacral plexus. The professor stroked my head again, saying: 'There now, it does not hurt you, you feel good, you are happy you are doing a great thing, everything is in good order, your labour is painless and will end painlessly, the

puerperium will also go well,' etc. The professor's presence produced a remarkable effect on me: I would somehow immediately begin to feel especially calm and have no pain. The doctor said everything was going fine and that by 3 o'clock it would all be over. I could not believe it; I thought that since this was my first child labour would last at least 24 hours.

"The doctor stayed with me and did not leave until the end of labour. My labour had begun. On the doctor's advice I helped along by tensing my abdominal muscles. The pangs of childbirth gave me a pleasant feeling. I told this to the doctor. The intervals between the pangs were not so pleasant: I felt a certain weakness and indefinable pains. The pangs were becoming increasingly vigorous and I helped each of them with pleasure holding on to the edge of the bed. In the intervals between the pangs I drowsed. Then I saw the doctor issue some instructions—to paint his fingers with iodine. It was 2 o'clock in the morning. The professor came and stood by my side. We struck up a conversation. He asked me how I felt and said with an air of contentment that everything was going fine, persuaded me I felt very well at ease, happy, etc. He joked and asked whether women in labour usually screamed. I listened to him and answered his questions. In his presence I continued to feel a peace of mind and well-being. At that time the doctor was occupied with me, I had a sheet over my knees and did not see what was going on. The doctor distracted me from my conversation with the professor by his curt orders: 'Breathe... help... easy... don't breathe....' After carrying out each order I turned to the professor. I experienced a new sensation, as if something were burning me. It occurred to me the doctor had touched me with his hands which were painted with iodine and that was what was now smarting. I had no time to concentrate on this, I was listening to the professor. Suddenly, as though in a dream, I saw the doctor hold up a child and slap it. The child cried out and I was congratulated on the birth of a son. For the first moment I was utterly bewildered and to save my life I could not believe it was all over. It seemed perfectly incredible. I had not even noticed that labour was at an end! I instantly felt uncommon joy, cheer, and a sensation of lightness. I was ready to jump out of bed. I felt absolutely well and full of strength, as though I had not experienced a severe strain.

"I was amazed not to feel any weakness or fatigue. The professor and I continued our conversation, recalling every detail of the experiment, while I was still being attended to—the placenta had been extruded and they were washing up. The doctor said there was a tear in the vaginal mucosa and he deemed it necessary to put in a stitch. This proved entirely painless. When everything was over I was covered up and taken back to the ward. I felt extraordinarily well, I was in possession of all my powers and was not at all sleepy. The professor and the obstetrician visited me in the ward and we all joyously shared the impressions of the experiment. I was in a most blissful state. After their departure I lay in bed for a long time and smiled to myself with a feeling of happiness. The next day and on all the subsequent days I felt very well. The puerperium proceeded satisfactorily. The child appeared to be very well. He weighed 10 pounds, took the breast immediately and sucked vigorously, vociferated loudly, but was otherwise rather quiet, giving everybody a chance to rest. I left the hospital on the ninth day. At home I felt so well that I was able to do some housework immediately and to take care of the baby all by myself. I must admit that I had an exceptionally easy childbirth. I cannot understand at all how women can speak of childbirth as something terrible. While I was in the hospital there were several women in labour. I heard the frantic screams of these women with mixed feelings of chagrin, bewilderment, and mistrust. I somehow felt the reasons for the screams were greatly exaggerated.

"As an experiment in the use of hypnosis my case seems interesting to me in that I was 'of sound mind and memory' all along.

"I had never been under hypnosis before and did not know its effects. I am surprised how simply and naturally it works. Calling to mind the process of labour I cannot say which was suggestion, which was autosuggestion, and which was simply distraction of my attention. It makes me laugh now to hear that it is terrible to submit to 'hypnosis.' "

BIBLIOGRAPHY

Russian

Агаджанянц К. С., Роль психотерапии в дерматологии, Русский журнал кожных и венерических болезней, 1904, т. VII.

Айхенвальд Л. И., Туберкулез и психика, Одесский медицинский журнал, 1929, в. 2—4.

Алфеевский Н. И., Нервные и психические явления у туберкулезных, Современная психиатрия, 1912, в. 3.

Альперн Д. Е., Вегетативная нервная система и тканевой обмен, Успехи современной биологии, 1935, т. 4, в. 4—5.

Альперн Д. Е., О трофической функции нервной системы, Успехи современной биологии, 1954, т. 37, в. 3.

Амфитеатров Л. Г., Гипноанестезия при искусственном аборте, Акушерство и гинекология, 1936, в. 4—6.

Амфитеатров Л. Г., Обезболивание родов гипнозом, Акушерство и гинекология, 1937, в. 12.

Андреев Б. В., Доклад на 9-м совещании по физиологическим проблемам, посвященный памяти И. П. Павлова, изд. АН СССР, 1941.

Андриасян Г. К., Курортное лечение кожных болезней в свете учения И. П. Павлова, в сб.: Вопросы дерматологии на курорте Сочи-Мацеста, 1952, № 1.

Анохин П. К., Узловые вопросы в изучении высшей нервной деятельности, в сб.: Проблемы высшей нервной деятельности, Изд. АМН СССР, 1949.

Аптер И. М., Сексуальные неврозы и их терапия, в сб.: Неврозы, Харьков, 1930а.

Аптер И. М., Вопросы методики и практики психотерапии, в сб.: Психотерапия, Труды Украинского психоневрологического института, 1930б, т. XIV.

Арутюнов Н. А., К лечению бородавок гипнозом, Сборник научных работ Н-го кожно-венерологического госпиталя, Иваново, 1946; реф. Вестник дерматологии и венерологии 1947, в. 4.

Асратян Э. А., Принцип „переключения" в условнорефлекторной деятельности, Физиологический журнал СССР, 1941, т. 30, в. 1.

Бакулев А. Н., Некоторые задачи хирургии в свете учения И. П. Павлова, Журнал высшей нервной деятельности, 1951, т. I, в. 3.

Бахтиаров В. А., Синяк от мнимого ушиба, полученный в гипнотическом сне, Клинический журнал Саратовского университета, 1928, в. 3.

Бахтиаров В. А., Волдырь от мнимого ожога, полученный гипнотическим внушением, Уральский медицинский журнал, 1929, в. 6.

Бахтиаров В. А., Гипнотическое внушение в хирургии, Уральский медицинский журнал, 1930, в. 1.

Бахтиаров В. А., Случай верхней торакопластики под гипнозом, в сб.: Борьба с туберкулезом, в. 1, 1933.

Бахтиаров В. А. и *Шибанов Н. М.*, Врач и больной, Журнал исследовательских институтов свердловского облздрава, 1938, сб. 10.

Безюк Н. Г., Прямое внушение наяву как лечебный фактор при лечении бородавок, Советский врачебный журнал, 1938, № 3.

Безюк Н. Г., О лечебном значении внушения в дерматологии. Дисс., Ташкент, 1939а.

Безюк Н. Г., К вопросу о лечении внушением pruritus cutaneus, Врачебное дело, 1939б, в. 6.

Безюк Н. Г., К вопросу этиопатогенеза и терапии дисменорройного дерматоза Матценауэра-Полланд, Вестник венерологии и дерматологии, 1939в, в. 8.
Безюк Н. Г., Об эмоциональной и внушенной температуре, Советский врачебный журнал, 1940, в. 3—8.
Безюк Н. Г., Внушение как лечебный метод в дерматологии, в сб.: Вопросы нейротравматологии и психоневрологии, т. II, Харьков, 1941.
Безюк Н. Г., Слово как физиологический, патофизиологический и лечебный фактор в дерматологии, Тезисы доклада на расширенном пленуме ученой венерологической комиссии Министерства здравоохранения УССР совместно с украинским отделением Всесоюзного общества дермато-венерологов, Киев, 1953.
Белахов И. Л., Маннков М. Е., Неньковская С. С., Косвенная рентгенотерапия заболеваний кожи, Советский вестник венерологии и дерматологии, 1936, в. 2.
Белицкий Ю. К., К вопросу об амбулаторном лечении алкоголиков гипнозом, Обозрение психиатрии, неврологии и экспериментальной психологии, 1903, № 11.
Белицкий Ю. К., Неврастения, ее сущность, причины и симптомы, СПБ, 1906.
Берг С. М., Гипноз в хирургии, Врачебное дело, 1926, № 24—26.
Берлин-Чертов С. В., Туберкулез и психика, М., 1948.
Бернгейм, О гипнотическом внушении и применении его к лечению болезней, ч. 1-я, Одесса, 1887 (перевод с франц.) и ч. 2-я, 1888.
Бехтерев В. М., Случай навязчивых идей, леченных самовнушением, Вестник клинической и судебной психиатрии, 1890, т. VII, в. 2.
Бехтерев В. М., О лечении навязчивых идей гипнотическим внушением, Врач, 1892, т. XIII, в. 1.
Бехтерев В. М., К вопросу о врачебном значении гипноза, Неврологический вестник, 1893, т. I, в. 1.
Бехтерев В. М., Значение гипноза как врачебного средства, Нервные болезни в отдельных наблюдениях, 1894, в. 1.
Бехтерев В. М., Роль внушения в общественной жизни, Обозрение психиатрии, неврологии и экспериментальной психологии, 1898, № 1.
Бехтерев В. М., О навязчивой рвоте, там же, 1900а, № 6.
Бехтерев В. М., Боязнь чужого взгляда, там же, 1900б, № 7.
Бехтерев В. М., О психических расстройствах глотания, там же, 1901, № 5.
Бехтерев В. М., О болезненном страхе профессионального характера, там же, 1902а, № 3.
Бехтерев В. М. и *Нарбут В. М.*, Объективные признаки внушенных изменений чувствительности в гипнозе, там же, 1902б, № 1—2.
Бехтерев В. М., Об одной своеобразной форме фетишизма, там же, 1903, № 1.
Бехтерев В. М., О навязчивом потении рук, там же, 1905, № 7.
Бехтерев В. М., Основные учения о функциях мозга, 1906а, в. VI.
Бехтерев В. М., О боязни опоздать, Обозрение психиатрии, неврологии и экспериментальной психологии, 1906б, № 37.
Бехтерев В. М., Боязнь полового бессилия и coitus как причина половой неврастении, там же, 1907а, № 1.
Бехтерев В. М., О навязчивых кишечных и пузырных кризах, там же, 1907б, № 1.
Бехтерев В. М., О навязчивой ревности, Русский врач, 1908, № 34.
Бехтерев В. М., О навязчивой рвоте, Невропатологические и психиатрические наблюдения, СПБ, 1910а.
Бехтерев В. М., Неперенесливость или боязнь чужого взгляда, там же, 1910б.
Бехтерев В. М., О психических расстройствах глотания, там же, 1910в.
Бехтерев В. М., Гипноз, внушение и психотерапия и их лечебное значение, Вестник знания, 1911, в. 4.
Бехтерев В. М., Внушение и воспитание, в сб.: Вопросы педагогической патологии, СПБ, 1912а.
Бехтерев В. М., Применение метода сочетательно-двигательного рефлекса к исследованию притворства, Русский врач, 1912б.
Бехтерев В. М., О лечении болезненных влечений и навязчивых состояний отвлекающей психотерапией, Обозрение психиатрии, неврологии и экспериментальной психологии, 1913, № 6—7.
Бехтерев В. М., О навязчивых фобиях и их лечении, Русский врач, 1915, № 14.
Бехтерев В. М., О развитии фобий, Обозрение психиатрии, неврологии и экспериментальной психологии, 1916а, № 2.
Бехтерев В. М., Роль внушения в деле воспитания, Петроград, 1916б.

Бехтерев В. М., О терапевтическом значении воспитания сочетательного рефлекса при истерических анестезиях и параличах, Обозрение психиатрии, 1917, № 1—12.
Бехтерев В. М., Болезни личности с точки зрения рефлексологии, в сб.: Вопросы изучения и воспитания личности, 1922а.
Бехтерев В. М., Половые уклонения и извращения в свете рефлексологии, там же, 1922б.
Бехтерев В. М. и *Щелованов Н. М.*, О влиянии гипноза и внушения на сочетательные рефлексы, в сб.: Новое в рефлексологии и физиологии нервной системы, 1925, в. 1.
Бехтерев В. М. и *Мясищев В. Н.*, О сочетательно-рефлекторных изменениях мозгового пульса, Труды института медицинских знаний, 1928, в. 4.
Бехтерев В. М., Об эмоциях как мимико-соматических реакциях, в сб.: Новое в рефлексологии и физиологии нервной системы, 1929а, в. 2.
Бехтерев В. М. и *Голант Р. Я.*, Неврозы и психоневрозы, в кн.: Г. Ф. Ланг, Частная патология и терапия внутренних болезней, т. IV, в. 3, 1929б.
Бехтерев В. М., Психастения, Истерия, там же, 1929 в.
Бирман Б. Н., Экспериментальный сон. Дисс., Госиздат, 1925.
Бирман Б. Н. и *Блюмкина М. М.*, Кататонические явления в истерии и экспериментальном гипнозе, Архив биологических наук, 1934, № 6.
Бирман Б. Н., Применение терапии сном в клинике неврозов, Вестник АМН СССР, 1946, № 1—6.
Бирман Б. Н., Роль гипнотического и сонного торможения в патогенезе и терапии невротических синдромов, Журнал высшей нервной деятельности, 1951а, т. I, в. 1.
Бирман Б. Н., Опыт клинико-физиологического определения типов высшей нервной деятельности, там же, 1951б, т. I, в. 6.
Блуменау Л. В., Истерия и ее патогенез, Госиздат, 1926.
Боголепов Н. К., Гипноз и вегетативная нервная система, Советский врачебный журнал, 1936, № 14.
Боголюбов В. Л., Личность врача в медицине, Казанский медицинский журнал, 1928, № 1.
Бони, Гипнотизм. Исследования физиологические и психологические, СПБ, 1889 (перевод с франц.).
Боткин С. П., О сокращении селезенки, СПБ, 1874.
Боткин С. П., Ежедневная клиническая газета, 1881.
Бритван Я. М., Одышка как патологический сочетательный или условный рефлекс, Невропатология и психиатрия, 1938, т. VII, № 9.
Бронштейн А. И., Материалы к учению о физиологической природе эмоций, Ленинградский медицинский журнал, 1928, № 3.
Булавинцев А. И., Психический желудочный сок у людей. Дисс., СПБ, 1903.
Булатов П. К., О роли внушения при лечении больных бронхиальной астмой аэроионизацией отрицательного знака, в сб.: Клинико-физиологические исследования бронхиальной астмы, Л., 1953а.
Булатов П. К. и *Буль П. И.*, О лечении бронхиальной астмы суггестивной терапией, там же, 1953б.
Бумке О., Современные течения в психиатрии, Госиздат, 1929 (перевод с нем.).
Бусалов А. А., Охранительная терапия сном по И. П. Павлову в до- и послеоперационном периоде, Журнал высшей нервной деятельности, 1951, т. I, в. 2.
Буторин В. И., О зависимости действия некоторых лекарственных веществ от эмоционального состояния больного. Доклад на юбилейной сессии, посвященной 20-летию Института по изучению мозга имени В. М. Бехтерева, 1938.
Быков К. М., Кора головного мозга и внутренние органы, Медгиз, 1947а.
Быков К. М., Новое в учении Павлова о высшей нервной деятельности, Стенограмма публичной лекции, изд. газеты „Правда", 1947б.
Быков К. М., Развитие идей И. П. Павлова (задачи и перспективы), изд. АН СССР, 1950.
Быков К. М., Учение И. П. Павлова и современное естествознание, Медгиз, 1952.
Вальковский Л. О., Об истерической лихорадке, Новое в медицине, 1910, № 13—14.
Василевский В. М. и *Каган Э. М.*, Влияние гипносуггестивных воздействий на функции организма в работе и реституции, Физиологический журнал СССР, 1935, т. XIX, в. 1.
Васильева В., Воспитание сочетательного двигательного рефлекса на составной раздражитель в виде звука и соответствующего ему слова, Обозрение психиатрии неврологии и экспериментальной психологии, 1913, № 5—6.
Васильев Л. Л. и *Подерни В. А.*, Выработка условного сердечного рефлекса при регистрации токов действия сердца, в сб.: Вопросы изучения и воспитания личности, 1930, в. 1—2.
Введенский Н. Е., Полное собрание сочинений, т. V, Л., 1954.

Вельвовский И. З., *Шугом Е. А.* и *Плотичер В. А.*, Система психопрофілактичного і психотерапевтичного обезболивания родів, Педіатрія, акушерство і гінекологія, 1950, № 1.
Вельвовский И. З., Опыт построения на основе учения И. П. Павлова психопрофилактического метода обезболивания в родах, в сб.: Обезболивание в родах, М., 1952а.
Вельвовский И. З., Второй принцип терапии по Павлову. Врачебное дело, 1952б, № 2.
Вельвовский И. З., *Платонов К. И.*, *Плотичер В. А.* и *Шугом Е. А.*, Психопрофилактика болей в родах, М., 1954.
Веттершранд О., Гипнотизм и его применение в практической медицине, М., 1893 (перевод с швед.).
Вигдорович М. В., Коллективное внушение как метод массовой подготовки беременных к обезболенным родам, Тезисы докладов на II Украинском съезде акушеров и гинекологов, Киев, 1938.
Виш С. М., Гипнотерапия расстройств сна у участников боевых операций, Психиатрия и неврология, 1946, № 6.
Внуков В., Психоанализ, БМЭ, т. 47, 1933.
Вознесенский С. Д., О работе психоневролога в туберкулезных учреждениях, в сб.: Борьба с туберкулезом, 1935, № 3.
Вольперт И. Е., Исследование сновидений в гипнозе, автореферат диссертации, Л., 1952.
Вяземский Н. В., Алкоголизм и лечение его гипнотическим внушением, Невропатология и психиатрия, 1909, в. 1—2.
Гаккебуш В. М., Новые пути в изучении эмоций, Современная психоневрология, 1926, № 4.
Гаккебуш В. М., Самонавіння в терапії неврозів, Харьков, 1928.
Гаккель А. Б., О психотерапии при сердечно-сосудистых нарушениях, Медгиз, 1948.
Галачьян А. Г., О некоторых основах целостного понимания больного, Медгиз, 1954.
Ганнушкин П. Б., Клиника психопатии, их статика, динамика, систематика, изд. „Север", М., 1933.
Гастев Д. М., Изменение жизненного стереотипа как этиологический фактор невротических состояний, Советский врачебный журнал, 1938, № 9.
Гелина Л. И., Психотерапия и гипноз в практике детского отделения психоневрологической больницы, в сб.: Учение И. П. Павлова в лечебной практике Психоневрологической больницы имени Кащенко, Медгиз, 1954.
Гервер А. В., Гипноз и внушение при меланхолических состояниях, Юбилейный сборник Ленинградской Максимилиановской больницы, Л., 1925.
Гершштейн Г. В., Время как условный раздражитель и его роль в генезе неврозов, Современная психоневрология, 1928, № 12.
Гершкович П. Н., Лечебная гимнастика в гипнотических фазах при органических параличах, парезах и болевых контрактурах, Врачебное дело, 1955, № 1.
Гизе Э. А. и *Лазурский А. Ф.*, Обозрение психиатрии, неврологии и экспериментальной психиатрии, СПБ, 1900.
Гиляровский В. А., Старые и новые проблемы психиатрии, Медгиз, 1946.
Гиляровский В. А., О взаимоотношениях соматического и психического в медицине, Врачебное дело, 1947, № 8.
Гиляровский В. А., Взаимоотношение психического и соматического в клинике соматогений, в сб.: Проблемы кортико-висцеральной патологии, Медгиз, 1949.
Гиляровский В. А., Психиатрия, Медгиз, 1954.
Горизонтов П. Д., Вопросы патологической физиологии в трудах И. П. Павлова, Медгиз, 1952.
Гордон О. Л., Роль нарушенной регуляции в клинике заболеваний желудка. Дисс., Медгиз, 1946.
Гоциридзе А. Ф., Шестилетний истерический мутизм с контрактурами, излеченный психотерапией, Современная медицина, Тбилиси, 1925.
Гоциридзе А. Ф., Психогения в гинекологии, Госиздат, 1929.
Гоциридзе А. Ф., К вопросу о психогенных формах эпилепсии и их лечении психотерапией, Невропатология и психиатрия, 1929а, № 3—4.
Гоциридзе А. Ф., Катарзис в психотерапии, Клиническая медицина, 1929б, № 19.
Гоциридзе А. Ф., О ятрогенных и псевдоорганических заболеваниях, Врачебное дело, 1929в, № 3—4.
Гоциридзе А. Ф., К методике гипноаналгезии при операциях, Труды Института функциональных нервных заболеваний, т. I, Тбилиси, 1936а (на русском языке).
Гоциридзе А. Ф., Двадцатипятилетние фобии. излеченные психотерапией, Современная медицина, Тбилиси, 1936б.

Губергриц Д. С., К патогенезу и терапии hyperemesis gravidarum, Акушерство и гинекология, 1927, № 10.
Гуревич Г. М. и *Мастбаум И. С.*, Психотерапевтический метод предоперационной подготовки, Хирургия, 1952, в. 10.
Давиденков С. Н., Очередные пути и задачи в учении о неврозах человека с точки зрения физиологии высшей нервной деятельности, Советский врачебный сборник, 1916, № 1.
Давиденков С. Н., О механизме истерических расстройств с точки зрения психосоматических взаимоотношений, в сб.: Проблемы кортико-висцеральной патологии, под ред. К. М. Быкова, изд. АМН СССР, 1949.
Давиденков С. Н., Клинические лекции по нервным болезням, Медгиз, 1952а.
Давиденков С. Н., Учение И. П. Павлова о неврозах человека и их лечении, Л., 1952б.
Давиденков С. Н., К проблеме неврозов, Медицинский работник, 1954, № 14.
Данилевский В. Я., Гипнотизм, Харьков, 1925.
Дарвин Ч., О выражении ощущений у человека и животных, Полное собрание сочинений, т. III, 1908.
Дежерин И. и *Гоклер Е.*, Функциональные проявления психоневрозов и их лечение психотерапией, М., 1912, (перевод с франц.).
Делов В. Е., Влияние коры головного мозга на проводящую систему сердца, Тезисы 5-го совещания по физиологическим проблемам, Л., 1939.
Джигурда О. и *Максимова Э.*, Часы и минуты врача, Литературная газета, 1953, № 54.
Дик В. Г., Психогенная форма дисменорреи и лечение ее внушением, Гинекология и акушерство, 1925а, № 2.
Дик В. Г., Психологические корни вагинизма и лечение его психотерапией, Вестник современной медицины, 1925б, № 7.
Дик В. Г., О диагностике психогенных заболеваний в гинекологии, Журнал акушерства и женских болезней, 1925в, № 3.
Дик В. Г., Психогенные заболевания женской половой сферы как противопоказание к курортному лечению, Курортное дело, 1927а, № 5.
Дик В. Г., Гипноз как вспомогательное средство в гинекологической терапии, Врачебное дело, 1927б, № 21.
Дик В. Г., Об „ятрогенных" заболеваниях в гинекологии (к вопросу о психогенных заболеваниях в женской половой сфере), Вестник современной медицины, 1927в, № 5.
Дик В. Г., О роли психики в генезе гинекологических заболеваний, Журнал акушерства и женских болезней, 1928, № 2.
Дик В. Г., О напрасных гинекологических операциях, Казанский медицинский журнал, 1929а, № 7 и 8.
Дик В. Г., О психогенных болях в гинекологии, Журнал акушерства и женских болезней, 1929б, № 5.
Довбня Е. Н., Случай пятилетней астазии-абазии, излеченной психотерапией, Психотерапия, 1910, в. 1.
Долин А. О., *Минкер-Богданова Е. Г.* и *Поворинский Ю. А.*, Роль коры головного мозга в регуляции процессов обмена, Архив биологических наук, 1934, XXXVI, серия Б, в. 1.
Долин А. О., Условное воспроизведение и подавление корой больших полушарий болезненного состояния организма, Труды 5-го совещания по высшей нервной деятельности АН СССР и ВИЭМ, Л., 1935.
Долин А. О., Условный эпилептиформный припадок, 3-е совещание по физиологическим проблемам физиологического института АН СССР (тезисы докладов), Л., 1938.
Долин А. О., Экспериментальная эпилепсия, Архив биологических наук, 1939а, т. 54, в. 1.
Долин А. О., Корковое условное торможение болезнетворного влияния химических веществ на организм, Архив биологических наук, 1939б, т. 54, в. 1.
Долин А. О., Роль коры головного мозга в патологических процессах организма, Труды объединенной сессии, посвященной 10-летию со дня смерти И. П. Павлова, Л., 1948.
Долин А. О. и *Крылов В. Н.*, Роль коры головного мозга в иммунных реакциях организма, Журнал высшей нервной деятельности, 1952, т. II, в. 4.
Дубников Е. И., К лечению гипнозом, Врачебная газета, 1926, № 12.
Дубников Е. И., К вопросу об „иатрогенных" заболеваниях, Врачебное дело, 1928, № 8.
Дубников Е. И., К вопросу о лечении экземы нервного происхождения гипнозом, Врачебное дело, 1932, № 15—16.
Дубников Е. И., Два случая излеченной метроррагии гипнотерапией, Акушерство и гинекология, 1936, № 8.
Дубников Е. И., Гипнотерапия в практике, Советский врачебный журнал, 1939, № 2.

Дюбуа, Психоневрозы и их психическое лечение, СПБ, 1912а (перевод с франц.).
Дюбуа, Воображение как причина болезни, изд. „Наука", 1912б (перевод с франц.).
Езерский Я., *Плотичер А.* и *Фурманов А.*, Вопросы клиники и генеза ночного недержания мочи у детей, Украинский медицинский архив, 1930, т. VI.
Ершов Н. Д. и *Ксенократов М. Н.*, О роли психогений, Казанский медицинский журнал, 1935, 11—12.
Жане П., Неврозы и фиксированные идеи, СПБ, 1903.
Жуар, Гипнотическое лечение психических расстройств у истеричных, Обозрение неврологии и психиатрии, 1896, № 10.
Жуков И. А., Лечение внушением и гипнозом некоторых кожных заболеваний в условиях курорта Сочи-Мацеста. Дисс., Медгиз, 1954.
Завилянский И. Я., К психотерапии шизофрении, XVIII научная сессия УПНИ, 1953.
Зайдель Ф. Л., К психотерапии малых неврозов, Невропатология и психиатрия, 1930, № 6.
Зайцев А. И., Влияние внушения на появление и исчезновение сыпей и других трофических расстройств, Вестник психиатрии, 1904, в. 2.
Захарьин Г. А., Клинические лекции, М., 1909.
Здравомыслов В. И., Опыты применения гипноза в акушерстве и гинекологии, Медгиз, 1930.
Здравомыслов В. И., Обезболивание родов внушением и гипнозом, Проблемы теоретической и практической медицины, т. IV, М., 1937а.
Здравомыслов В. И., Гипноз и внушение в акушерстве и гинекологии. Дисс., М., 1938.
Зеленин В. Ф., *Каннабих Ю. В.*, *Степанов П. Н.* и *Сухаревский Л. М.*, Влияние психического фактора на механизм терморегуляции и некоторые формы обмена, Клиническая медицина, 1936, т. XIV.
Зиновьев П. М., Психотерапия болевых синдромов при соматических заболеваниях, Врачебное дело, 1947, № 8.
Злотников С. А., О влиянии функции коры головного мозга на соматическую вестибулярную реакцию, Вопросы теоретической медицины, Медгиз, 1949.
Иванов-Смоленский А. Г., Опыт механизации гипнотического воздействия, Врачебное дело, 1928, № 3.
Иванов-Смоленский А. Г., О нарушениях нервной деятельности контузионно-коммоционного происхождения, Военно-медицинский сборник, т. II, 1945.
Иванов-Смоленский А. Г., О взаимодействии первой и второй сигнальных систем при некоторых физиологических и патологических условиях, Физиологический журнал СССР, 1949, в. 5.
Иванов-Смоленский А. Г., Пути развития идей И. П. Павлова в области патофизиологии высшей нервной деятельности, изд. Академии наук СССР, 1950.
Иванов-Смоленский А. Г., Об изучении совместной работы первой и второй сигнальных систем мозговой коры, Журнал высшей нервной деятельности, 1951, т. I, в. 1.
Иванов-Смоленский А. Г., Очерки патофизиологии высшей нервной деятельности, М-Л., 1952.
Иванов-Смоленский А. Г., Об изучении типов высшей нервной деятельности животных и человека, Журнал высшей нервной деятельности, 1953а, т. III, в. 1.
Иванов-Смоленский А. Г., Исследование совместной работы и взаимодействия первой и второй сигнальных систем применительно к задачам медицины, там же, 1953б, в. 4.
Иоссет Г. Я., *Титов Н. А.* и *др.*, О травме психики больных в хирургических отделениях, Советская врачебная газета, 1932, № 13.
Иоссет Г. Я., О травме психики хирургических больных, Вестник хирургии имени Грекова, 1940, в. 4.
Иоффе С. П., Из психотерапевтической гипносуггестивной практики в акушерстве, Врачебное дело, 1929, № 11.
Иоффе С. П., К вопросу о гипнотерапии, Днепропетровский медицинский журнал, 1928, № 1—2.
Иоффе С. П., Лечение так называемых неукротимых рвот беременных словесным внушением. Дисс., Воронеж, 1941.
Истомин П. П. и *Гальперин П. Я.*, О влиянии внушенных состояний на колебания пищеварительного лейкоцитоза, Украинский вестник рефлексологии, 1925, № 2.
Истомин П. П., К проблеме морфинизма, в сб.: Психотерапия, Труды УПНИ, т. XIV, 1930а.
Истомин П. П., К психотерапии и биологической ценности ее при беременности и родах, там же, 1930б.
Иткин М. Г., Больше чуткости к больному человеку (к вопросу об ятрогении), Советский врачебный журнал, 1936, № 22.

Казаченко-Трипродов И. П., О применении гипноза при гинекологических операциях, Врачебная газета, 1925, № 17—18.
Калашник Я. М., К вопросу о применении гипноза при беременности и родах, Одесский медицинский журнал, 1927, № 8—10.
Каминский С. Д. и *Шевченко Ю. Г.*, О роли коры больших полушарий в формировании боли, Невропатология и психиатрия, 1949, т. XVIII, в. 6.
Каннабих Ю. В., Внушение и внушаемость, БМЭ, 1928а.
Каннабих Ю. В., Врач как причина болезни, БМЭ, т. V, 1928б.
Каннабих Ю. В., К профилактике одной из форм реактивной (ятрогенной) депрессии, в сб.: Профилактика нервных и психических заболеваний, М., 1928в.
Каннабих Ю. В., Психотерапия, БМЭ, т. XXVII, 1933.
Каннабих Ю. В., Место гипноза в системе советской психотерапии и психогигиены, Советская невропатология, психотерапия и психогигиена, 1934, т. III, в. 9.
Карнаухов В. К., К развитию учения о неврогенном происхождении бронхиальной астмы, Советская медицина, 1953, № 3.
Картамышев А. И. и *Левит Н.*, Гипнотическое торможение и феномен Мюллера, Современная психоневрология, 1930, № 7—8.
Картамышев А. И., Гипноз в дерматологии, Госиздат Узбекской ССР, Ташкент, 1936а.
Картамышев А. И., Возможности использования гипноза в дерматологии, Советская наука и техника, 1936б, № 5.
Картамышев А. И., Лечение кожных заболеваний внушением, Изд. Башкирского кожно-венерологического диспансера, Уфа, 1942.
Картамышев А. И., Гипноз и внушение в терапии кожных болезней, Медгиз, 1953.
Катков Е. С., Матеріали до фізіологічної характеристики стадій гіпнозу і объективної діагностики глибини гіпноідних станів у людини, Наукові записки Харьківськ. держ. Педагогічного інст., т. VI, 1941.
Кеннон, Вальтер, Физиология эмоций, Телесные изменения при голоде, страхе и ярости, перевод с английского, Л., 1927.
Кербиков О. В. и *Крылов Д. Н.*, Опыт изучения ультрапарадоксальной фазы в клинике психогенных реакций, Журнал высшей нервной деятельности, 1953, т. III, в. 3.
Киселева С. К., Условнорефлекторные лейкоцитарные реакции периферической крови, Клиническая медицина, 1951, в. 9.
Кнеплер А., К вопросу о применении гипноза в гинекологии, Врачебное дело, 1925, № 19—20.
Ковалевский П. И., Стигматики, Практический врач, 1909, № 12.
Ковальсов С. І., Обезболювання родів психопрофілактичным методом, Педіатрія, акушерство і гінекологія, 1953, № 5.
Ковригина М. Д., За высокую культуру медицинского обслуживания населения, Медицинский работник, 1954, № 89.
Кобылянский Н. Г., Дисменоррея, излеченная внушением, Врач, 1887, № 45.
Коганов М. И., Обезболивание родов внушением. Дисс., Харьков, 1946.
Коганов М. И., Обезболивание родов внушением без предварительной гипнотической подготовки, Акушерство и гинекология, 1951, № 2.
Кожевников А. Я., Случай исцеления от сикоза, Труды Московского университета, СПБ, 1895.
Кожевников А. Я., Расстройства кровообращения под влиянием душевных волнений, Вопросы философии и психологии, 1898, кн. V.
Козин Н. И., Труды лаборатории по физиологии и патофизиологии высшей нервной деятельности ребенка, в. 2, 1933.
Козин Н. И., Опыт образования условного рефлекса на изменение кровяного давления у детей, Архив биологических наук, 1935, т. 39, в. 2.
Кольский Ф. П., Случай вызывания месячных при помощи словесного внушения в состоянии гипноза, Медицинское обозрение, 1887, № 10.
Комаров Ф. И., Секреторная деятельность пищеварительных желез у человека во время сна, Медгиз, 1953.
Константинов В. Н., Применение гипноза в хирургии, Казанский медицинский журнал, 1937, № 6.
Копиль-Левина З. А., Методика обезболивания родов словесным внушением, в кн.: К. И. Платонов, Вопросы психотерапии в акушерстве, Харьков, 1940.
Копиль-Левина З. А., К обезболиванию родов по методу внушения в присутствии и отсутствии подготавливавшего психотерапевта, в сб.: Вопросы нейротравматологии и психоневрологии, изд. Дорсанотдела Южной ж. д., Харьков, 1941.

Копиль-Левина З. А., К методике психотерапии и механизмам развития психогенных расстройств зрения и слуха, в сб.: Вопросы невропатологии и психоневрологии, ч. 2, изд. Дорсанотдела Южной ж. д., Харьков, 1941 б.

Копиль-Левина З. А. и *Шершевская О. И.*, К вопросу о функциональных поражениях зрения и слуха военного времени, в сб.: Боевая травма нервной системы, Медгиз, 1948.

Короткин И. И., *Майоров Ф. П.* и *Суслова М. М.*, Исследование высшей нервной деятельности человека в сомнамбулической фазе гипноза, Журнал высшей нервной деятельности, 1951, т. I, в. 4.

Короткин И. И. и *Суслова М. М.*, Исследование высшей нервной деятельности в сомнамбулической фазе гипноза при различной глубине гипнотического сна, Физиологический журнал СССР, 1953, т. 39, № 24.

Косяков К. С., Материалы к условнорефлекторному влиянию на уровень сахара в крови человека, Журнал высшей нервной деятельности, 1952, в. 5.

Котляревский Л. И., Труды лаборатории физиологии и патофизиологии высшей нервной деятельности ребенка, т. 4, 1934.

Котляревский Л. И., Сердечно-сосудистые условные рефлексы на непосредственные и условные раздражители, Физиологический журнал СССР, 1936, т. XX, № 2.

Котляревский Л. И., Влияние экспериментального срыва высшей нервной деятельности на течение нейроинтоксикации у животных, Журнал высшей нервной деятельности, 1951, т. I, в. 3.

Красногорский Н. И., Развитие учения о физиологической деятельности мозга у детей, изд. Ленинградского института охраны детей и подростков, 1939.

Красногорский Н. И., Фазовые изменения деятельности больших полушарий головного мозга у детей, Журнал высшей нервной деятельности, 1951 а, т. I, в. 1.

Красногорский Н. И., Некоторые итоги развития и применения учения И. П. Павлова о высшей нервной деятельности в педиатрической клинике, Журнал высшей нервной деятельности, 1951 б, т. I, в. 6.

Красногорский Н. И., Инфракрасное излучение тела у детей при гипнотических (разделенных) состояниях коры больших полушарий, Журнал высшей нервной деятельности, 1951 в, т. I, в. 3.

Крафт-Эбинг, Экспериментальные исследования в области гипнотизма, СПБ, 1889.

Крепс Е. М., К вопросу о влиянии течки на высшую нервную деятельность, Русский физиологический журнал имени И. М. Сеченова, 1923, в. 4–6.

Кронфельд А., Гипноз и внушение, Берлин, 1923 (перевод с нем.).

Крюнцель А. А., Влияние внушения в гипнозе на свертываемость крови, Клиническая медицина, 1932, т. X, в. 17–18.

Крышова Н. А., Применение метода охранительного торможения в клинике органических поражений нервной системы, Невропатология и психиатрия, 1953, в. 8.

Ксенократов М. Н., Влияние гипнотического сна и внушения на внимание, Казанский медицинский журнал, 1935, № 11–12.

Кудашев А. Д., Опыты применения гипноза в акушерстве и гинекологии, Казанский медицинский журнал, 1927, в. 12.

Купалов П. С., Условные невротические рефлексы, Архив биологических наук, 1941 а, т. 61, в. 3.

Купалов П. С., Влияние условных раздражителей на безусловный рефлекс, там же, 1941 б, в. 3.

Купалов П. С., Об экспериментальных неврозах у животных, Журнал высшей нервной деятельности, 1952, т. II, в. 4.

Лазурский А. Ф. и *Гизе Э. А.*, Дыхание и пульс во время гипноза, Обозрение психиатрии, неврологии и судебной психиатрии, 1900, № 5.

Лебединский М. С., Психотерапия при нарушении речи, Невропатология и психиатрия, 1945, в. 6.

Лебединский М. С. и *Гольдман Л. Н.*, Психотерапия больных гипертонической болезнью. Рефераты научно-исследовательских работ, изд. АМН СССР, М., 1947, в. 2, стр. 19; Новости медицины, изд. АМН СССР, 1948, в. VII.

Левенфельд Л., Гипноз и его техника, Изд. „Космос" с предисловием К. И. Платонова, 1929 (перевод с нем.).

Левин С. М., Гипноз и условные рефлексы, Советская врачебная газета, 1934 а, № 1.

Левин С. М., Об особенностях условнорефлекторной деятельности в гипнотическом состоянии у детей, Физиологический журнал СССР, 1934 б, т. XVII, в. 2.

Левин С. М., Функциональное выключение анализаторов и условные рефлексы, Архив биологических наук, 1936, т. 34, в. 1.

Левин С. М. и *Петрова В. К.*, Количественные и биохимические изменения секреции слюнных желез во время гипнотических внушений, Клиническая медицина, 1938, в. 6.

Левитус Е. Л., Соколова И. М. и *Фельбербаум Р. А.*, Характеристика состояния центральной нервной системы при ревматизме у детей, Педіатрія, акушерство і гінекологія, 1953, в. 1.
Лежнев Н. Ф., Психогенные заболевания в урологии, Урология, 1923, т. V, в. IV, № 22.
Ленц А. К., О физиологической сущности гипноза, Природа, 1927, в. 7—8.
Лик Э., Врач и его призвание, Новый хирургический архив, Днепропетровск, 1927.
Лиознер С. А., Общие принципы профилактики неврозов, Л., 1928.
Литвиненко Г. Н., К вопросу о применении внушений в акушерстве и гинекологии, Акушерство и женские болезни, 1928, т. XXXIX, кн. 2-я.
Лобач Я. М., Условный лейкоцитарный рефлекс у нормальных и душевнобольных, Труды I Всесоюзного съезда невропатологов и психиатров, Л., 1929.
Лукин Д., Косвенная рентгенотерапия кожных заболеваний, Вестник венерологии и дерматологии, 1939, № 2—3.
Лурия Р. А., Врач и психогенез некоторых заболеваний внутренних органов, Казанский медицинский журнал, 1928, № 1.
Лурия Р. А., Внутренняя картина болезни и „иатрогенные" заболевания, М., 1944.
Майзель Б. С., Демонстрация больной с разлитой по всему телу экземой 20-летней давности, излеченной внушением, Труды Института физических методов лечения имени И. М. Сеченова, Ялта, 1937.
Майоров Ф. П., Исследование динамики сна и переходных состояний у человека методом хронаксии, 3-е совещание по физиологическим проблемам, 1938; Тезисы докладов, изд. Академии наук СССР; Архив биологических наук, 1939, т. XIV, в. 1.
Майоров Ф. П. и *Суслова М. М.*, Гипнотические опыты с внушенными возрастами, Рефераты научно-исследовательских работ, 1947, в. 1.
Майоров Ф. П., О фазах сна, Физиологический журнал СССР, 1948, т. XXXIV, в. 4.
Майоров Ф. П., О функциональной системе, Труды физиологической лаборатории имени И. П. Павлова, т. XVI, 1949.
Майоров Ф. П., О физиологической характеристике сомнамбулической фазы гипноза, Физиологический журнал СССР, 1950, т. XXXVI, в. 6.
Майоров Ф. П., Физиологическая теория сновидения, изд. АМН СССР, 1951а.
Майоров Ф. П. и *Суслова М. М.*, Исследование экспериментальной регрессии речи в гипнозе, Журнал высшей нервной деятельности, 1951б, т. I, в. 4.
Манассеин В. А., Материалы для вопроса об этиологическом и терапевтическом значении психических влияний, СПБ, 1876.
Манассеин В. А., О значении психических влияний, лекции, СПБ, 1877.
Манойлов Н. Г., К вопросу о лечении бородавок внушением, Русская клиника, 1928а, № 53—54.
Манойлов Н. Г. и *Красин В. К.*, К вопросу о влиянии внушения на секреторную функцию желудка, Врачебная газета, 1928б, № 19.
Маренина А. И., Исследование сна нарколептиков методом электроэнцефалографии, Журнал высшей нервной деятельности, 1952а, т. II, в. 2.
Маренина А. И., Электроэнцефалографическое исследование сомнамбулической фазы гипноза, Труды Института физиологии имени И. П. Павлова, т. I, 1952б.
Маренина А. И., Электроэнцефалографическое исследование естественного и гипнотического сна человека, т. I, там же, 1952в.
Маренина А. И., Исследование динамики сна человека посредством измерения электрического сопротивления поверхности кожи, т. I, там же, 1952.
Марковников Н. А., Лечение алкоголизма комбинацией внушения с выработкой условнорефлекторной рвоты от глотка спиртного напитка, Советский врачебный журнал, 1937, № 10.
Мастбаум И. С., Подготовка больных к операции гипносуггестией, Врачебное дело, 1952, в. 2.
Матвеева В. Ф., Действительный метод обезболивания родов, Медицинский работник от 21. IX. 1950.
Мацкевич А. Н., К вопросу о влиянии экспериментального сна на высшие нервные функции, в сб.: Психотерапия под ред. К. И. Платонова, Харьков, 1930.
Медведовский М. С. и *Невский И. М.*, к вопросу о влиянии коры головного мозга на вестибулярные функции, Труды 1 Ленинградского медицинского института имени И. П. Павлова, Л., 1940.
Мендельсон А. А., Опыт лечения алкоголиков в амбулаторных условиях, Невропатология и психиатрия, 1904, в. 1—2.
Миловидов А. В., Излечение внушением случая навязчивой идеи, Обозрение психиатрии, неврологии и экспериментальной психологии, 1907, № 1.
Милославский М. Я., Снятие возбуждения матки при угрожающем прерывании беременности психотерапевтическим методом, Педіатрія, акушерство і гінекологія, 1951, в. 4; 1952, в. 6.

Милославский М. Я., Рефлекторные сосудистые реакции у беременных при угрожающем недонашивании под влиянием воздействия слов, Акушерство и гинекология, 1954а, в. 2.
Миртовская Е. В., К вопросу о значении психотравмы в развитии туберкулезной вспышки, Труды Иваново-Вознесенского туб. института, 1934, в. 2.
Молль, Гипнотизм, СПБ, 1909 (перевод с нем.).
Мори, Сон и сновидения, СПБ, 1867 (перевод с франц.).
Моссо А., Страх, Полтава, 1887.
Мясищев В. Н. и *Яковлева Е. К.*, О психогенных висцеральных нарушениях, Современная психоневрология, 1937, в. 3.
Мясников А. Л., Роль нарушенной высшей нервной деятельности в патогенезе гипертонической болезни, Журнал высшей нервной деятельности, 1951, т. I.
Мясников А. Л., Гипертоническая болезнь, Медгиз, 1954.
Мудров М. Я., Слово о способе учиться и учить медицине практической, М., 1820; Русский врач. 1914, № 8.
Мудров М. Я., Избранные произведения, изд. АМН СССР, 1949.
Нагель К. О., О колебаниях количества крови при различных условиях. Дисс., СПБ, 1889.
Нарбутович И. О., Возможность вызывания гипнотического сна и дегипнотизации у человека при помощи индиферентных раздражителей по методу условных рефлексов, Архив биологических наук, 1933, т. XXXIV.
Невский И. М. и *Архангельская Ю. Н.*, Влияние гипноза на морфологию белой крови, в сб.: Новое в рефлексологии, 1929, № 3.
Невский И. М. и *Зрячих К. З.*, Влияние гипноза и внушения на силу мышц, там же.
Невский И. М. и *Левин С. Л.*, О безусловной и условной секреторной деятельности во время гипноза у детей, Казанский медицинский журнал, 1932, в. 4.
Невский И. М., Исследование динамики сна, гипноза и переходных состояний в норме и в патологии. Дисс, Л., 1949.
Никитин М. П., Головной мозг и функции молочной железы. Дисс., СПБ, 1905.
Никитин М. П., К психогенезу эпилептических припадков, Современная невропатология, 1934, т. III, в. 11—12.
Николаев А. П., Гипноз в акушерстве и гинекологии, Врачебная газета, 1924, № 19—20.
Николаев А. П., Гипноз при родах и операциях, Казанский медицинский журнал, 1930, № 1.
Николаев А. П., Механизм гипноза и вегетативная нервная система, Врачебная газета, 1927а, № 22.
Николаев А. П., Теория и практика гипноза в физиологическом освещении, Научная мысль, Харьков, 1927б.
Николаев А. П., Суггестивный метод обезболивания родов, глава VIII в книге „Руководство по обезболиванию родов", Сталино, 1936.
Николаев А. П., Очерки теории и практики обезболивания родов, Медгиз, 1953.
Никольский П. В., Влияние душевной деятельности на кожу, Варшава, 1910.
Новицкий А. М., Случай так называемой истерической лихорадки, Врач, 1897, № 21.
Ольнянская Р. П., Влияние коры головного мозга на газообмен, Физиологический журнал СССР, 1932, т. 15.
Ольнянская Р. П. и *Слоним А. Д.*, Влияние коры головного мозга на регуляцию тепла в организме, Физиологический журнал СССР, 1938, в. 6.
Ольнянская Р. П., Кора головного мозга и газообмен, изд. АМН СССР, 1950.
Оппенгейм, О психическом характере некоторых расстройств актов испражнения и мочеиспускания, Медицинское обозрение, июнь, 1901.
Орбели Л. А., Лекции по физиологии нервной системы, ОГИЗ, 1935.
Орбели Л. А., Вопросы высшей нервной деятельности, изд. АН СССР, лекция 4, Сон и гипноз, 1949.
Осипов В. П., О физиологическом происхождении эмоций. в Юбилейном сб.: 75 лет со дня рождения И. П. Павлова, Л., 1925.
Осипова В. Н., Скорость образования сочетательных рефлексов у детей школьного возраста, Новое в рефлексологии и физиологии нервной системы, 1926, в. 2.
Павлов Б. В. и *Поворинский Ю. А.*, К вопросу о взаимодействии первой и второй сигнальных систем в сомнамбулической фазе гипноза, Журнал высшей нервной деятельности, 1953, т. III, в. 3.
Павлов И. П., Современное объединение в эксперименте главнейших сторон медицины на примере пищеварения, Речь на торжественном заседании Общества русских врачей, посвященном памяти С. П. Боткина, 1899; Медгиз УССР, 1953.
Павлов И. П., Лекции о работе больших полушарий головного мозга, ГИЗ, 1927.

Павлов И. П., Речь на открытии XV Международного физиологического конгресса, в сб.: XV Международный физиологический конгресс, Медгиз, 1936.
Павлов И. П., Письмо к молодежи, Полное собрание трудов, т. I, 1940, стр. 27—28.
Павлов И. П., К физиологии и патологии высшей нервной деятельности, изд. газеты „Правда", 1949.
Павлов И. П., Двадцатилетний опыт объективного изучения высшей нервной деятельности (поведения) животных, Медгиз, 1951а.
Павлов И. П., Полное собрание сочинений, т. III, кн. 1, изд. АН СССР, 1951б.
Павлов И. П., Полное собрание сочинений, т. III, кн. 2, изд. АН СССР, 1951в.
Павлов И. П., Полное собрание сочинений, т. IV, изд. АН СССР, 1951.
Павлов И. П., Полное собрание сочинений, т. V, изд. АН СССР, 1952а.
Павлов И. П., Физиология пищеварения, изд. АМН СССР. 1952б.
Пайкин М. О., К вопросу о применении словесной терапии при рвоте беременных, Труды Украинского психоневрологического института, т. XIX, 1930.
Парамонов Н. Н., Применение гипноза в хирургии, Новый хирургический архив, 1937, № 12.
Парфенов А. П., Истерический амавроз, леченный психотерапией, Врачебная газета, 1927, № 22.
Певницкий А. А., Лечение алкоголиков по данным двухлетнего опыта амбулатории клиники В. М. Бехтерева, Обозрение психиатрии, неврологии и экспериментальной психологии, 1905, № 4.
Петров Н. Н., Вопросы хирургической одонтологии, Военно-медицинский журнал, 1952, № 5.
Петрова М. К., Лечение экспериментальных неврозов у собак, Архив биологических наук, 1925, т. 25, в. 1—3.
Петрова М. К., Ультрапарадоксальная фаза и ее механизм, Труды физиологической лаборатории имени И. П. Павлова, т. 7, 1937.
Петрова М. К., Кожные заболевания у экспериментальных собак, Труды физиологических лабораторий имени И. П. Павлова, 1945а, т. 12.
Петрова М. К., Торможение как фактор, восстанавливающий нервную деятельность, там же, 1945б.
Петрова М. К., Об экспериментальных фобиях, там же, 1945в.
Петрова М. К., О роли функционально ослабленной коры головного мозга в возникновении различных патологических процессов в организме, Медгиз, 1946.
Перельмутер М. М., О психотерапии, Невропатология и психиатрия, 1949, в. 4.
Пилипенко П. Д., Коллективная психотерапия, Современная психиатрия, 1934, № 2.
Платонов К. И., Воспитание сочетательно-двигательного рефлекса на составной (свет + звук) раздражитель. Дисс., СПБ, 1912.
Платонов К. И., Психорефлексы и влияние на них гипнотического внушения. Харьковский медицинский журнал, 1915, № 6.
Платонов К. И., О значении эмоций в развитии неврозов, в сб.: Травматический невроз, Харьков, 1918.
Платонов К. И. и *Вельвовский И. З.*, К вопросу о применении гипноза в хирургии, акушерстве и гинекологии. Врачебное дело, 1924, № 7.
Платонов К. И., Гипноз и внушение в практической медицине, Научная мысль, 1925а.
Платонов К. И. и *Шестопал М. В.*, Внушение и гипноз в акушерстве и гинекологии, Госиздат Украины, 1925б.
Платонов К. И., Врачи и гипноз, Врачебное дело, 1925в, № 24—26.
Платонов К. И., К вопросу о лечении психоневрозов гипнопсихотерапией, Современная психоневрология, 1925, № 6—7.
Платонов К. И., Внушение и гипноз в хирургии, Труды съезда хирургов левобережной Украины, ч. II, Харьков, 1925д.
Платонов К. И., К учению о природе гипноза и гипносуггестивной психотерапии, Современная психоневрология, 1926а, № 3.
Платонов К. И., О роли внушения в родообезболивании, Труды VII Всесоюзного съезда акушеров, 1926б.
Платонов К. И., О практическом значении инструкции о порядке применения гипноза, выработанной Научным советом при НКЗ РСФСР, Труды I Всесоюзного съезда невропатологов и психиатров, М., 1927, стр. 236.
Платонов К. И., Общефизиологические основы лечения неврозов, в сб.: Неврозы, приложение к журналу „Врачебное дело", 1929, в. 12.
Платонов К. И., Слово как физиологический и лечебный фактор, Госизд. Украины, 1930а.

Платонов К. И. и *Приходивый Е. А.*, К объективному доказательству изменения личности путем внушения (экспериментально-психологическое исследование), в сб.: Психотерапия Труды Украинского психоневрологического института, т. XIV, 1930б.

Платонов К. И., Гипноз и алкоголизированная нервная система, Вопросы общей психоневрологии, там же, 1930в, т. XV.

Платонов К. И., О словесном гипносуггестивном методе исследования в области психофизиологии и психологии, Труды IV Всесоюзного съезда физиологов, 1930.

Платонов К. И., Психотерапия в системе единого диспансера, Врачебное дело, 1933а, № 10.

Платонов К. И., О психогенезе и психотерапии рвот беременных, Журнал акушерства и женских болезней, 1933б, кн. 4-я.

Платонов К. И. и *Безчинская Н. М.*, Эмоции и влияние их на состояние желудка по рентгено-гипносуггестивному методу, Клиническая медицина, 1933в, № 1.

Платонов К. И., Фиксированное выступление на I Украинском съезде невропатологов и психиатров, Труды съезда, Харьков, 1935а.

Платонов К. И., К новому обоснованию психотерапии, Неврология, психиатрия и психогигиена, 1935б, т. IV, в. II.

Платонов К. И., О врачебном и санаторном психотравматизме туберкулезных больных, Врачебное дело, 1935в, № 3.

Платонов К. И., Психотерапія блювот вагітних, видання Украінської психоневрологічної Академіі, Харьків, 1936а.

Платонов К. И., Обезболивание родов по методу внушения, Научно-информационный материал УПНИ, 1936б; Труды конференции по обезболиванию родов, Сталино, 1936в.

Платонов К. И., Психические факторы при обезболивании родов, Акушерство и гинекология, 1937а, в. 9—10.

Платонов К. И., Общие соображения о путях и материалистическом обосновании психотерапии, Труды Кубанского медицинского института, в. VIII, Краснодар, 1937.

Платонов К. И., Материалы к вопросу о значении гипноидных фаз коры мозга в генезе и терапии невротических состояний, Труды XIV сессии Украинского психоневрологического института, т. XXIII (71), Харьков, 1937.

Платонов К. И., Метод гипносуггестивной репродукции психоневрологических синдромов (материалы к учению о так называемом травматическом неврозе), Проблемы неврологии и психиатрии, 1939.

Платонов К. И., О скрытом психическом факторе в медикаментозном родообезболивании, Акушерство и гинекология, 1940а, в. 3—4.

Платонов К. И., Словесное внушение и его физиологическое обоснование в применении к родообезболиванию, в сб.: Вопросы психотерапии в акушерстве, изд. Дорсанотдела Южной ж. д., Харьков, 1940в.

Платонов К. И., О психогенезе и психотерапии рвот беременных, там же, 1940.

Платонов К. И., К психотерапии так называемого травматического невроза, в сб.: Вопросы нейротравматологии и психоневрологии, ч. I, изд. Дорсанотдела Южной ж. д., Харьков, 1941а.

Платонов К. И., Итоги применения метода внушения в родообезболивании и их принципиальное значение, там же, 1941б.

Платонов К. И., Лечение суггестивной терапией токсикозных рвот беременных, сб.: Проблемы кортико-висцеральной патологии, под ред. К. М. Быкова, 1949.

Платонов К. И., Психопрофилактическое обезболивание родов, Врачебное дело, 1950б, № 12.

Платонов К. И., *Линецкий М. Л.*, *Пайкин М. О.* и *Бакальчук М. О.*, О влиянии внушенных эмоций на желудочную секрецию, Тезисы доклада на конференции в Институте экспериментальной медицины по проблемам пищеварения, Л., 1951.

Платонов К. И., Внушение и гипноз в свете учения И. П. Павлова, Медгиз, 1952а.

Платонов К. И., О природе некоторых расстройств функций внутренних органов в свете учения Павлова, в сб.: Проблемы кортико-висцеральной патологии, под ред. К. М. Быкова, 1952б.

Платонов К. И., К учению о значении сонного гипнотического торможения как терапевтического средства при лечении некоторых патологических состояний человека, Журнал высшей нервной деятельности, 1952в, т. II, в. 3.

Платонов К. И., О современном положении физиологически обоснованной психотерапии, Тезисы докладов на научной сессии, посвященной 150-летию Харьковского медицинского института, Харьков, 1955.

Платонов К. К., О неправильном педагогическом подходе как факторе психогенно-реактивных состояний у летного состава, Информационный бюллетень авиационной медицины, 1946, № 2.
Платонов К. К. и *Смухин М. В.*, Врачебная экспертиза летного состава при реактивно-психогенных состояниях, в сб.: Вопросы медицинского обеспечения авиации, т. II, М., 1939.
Плещитый Д. Ф., Материалы к вопросу о роли коры головного мозга в невосприимчивости к столбняку, в сб.: Проблема реактивности в патологии, Медгиз, 1954.
Поворинский Ю. А., Значение подготовки в применении гипноза при хирургических операциях, Журнал для усовершенствования врачей, 1928, т. XII.
Поворинский Ю. А. и *Трауготт Н. Н.*, О некоторых особенностях кортикальной динамики в гипнотическом сне, Архив биологических наук, 1936, т. 44, в. 2.
Поворинский Ю. А., Опыт экспериментального исследования изменения корковой динамики в гипнотическом состоянии. Дисс., Л., 1937.
Поворинский Ю. А., Влияние гипнотического воздействия на газообмен, Сборник, посвященный юбилею Р. Я. Голант, Л., 1940.
Поворинский Ю. А., Влияние эмоционального состояния на сосудодвигательные реакции, в сб.: Проблемы кортико-висцеральной патологии. 1949.
Поворинский Ю. А., Об изменениях кожно-сосудистых реакций в гипнотическом состоянии при воздействии непосредственных и словесных раздражителей, Невропатология и психиатрия, 1953, т. 53, в. 11.
Подкопаев Н. А., Выработка условного рефлекса на автоматический раздражитель, Труды физиологической лаборатории И. П. Павлова, т. I, в. 2—3, 1926.
Подкопаев Н. А., Физиологический анализ психического компонента при заболеваниях пищеварительного тракта, в сб.: Проблемы кортико-висцеральной патологии, 1949.
Подъяпольский П. П., Пузырь от мнимого ожога, полученный словесным внушением в состоянии искусственного сна, Труды Саратовского общества естествоиспытателей, т. IV, в. 2, 1903—1904.
Подъяпольский П. П., О хлороформенном сне, Невропатология и психиатрия, 1908, № 10.
Подъяпольский П. П., О вазомоторных расстройствах, вызываемых гипнотическим внушением, Журнал имени Корсакова, 1909, в. 1—2.
Подъяпольский П. П., О применении гипнотического внушения при эпилепсии, Неврологический вестник, 1913, № 3.
Подъяпольский П. П., Случаи применения гипнотического внушения в лазаретной практике, Невропатология и психиатрия, 1915, в. 2.
Подъяпольский П. П., Простое словесное внушение в качестве общего наркоза, Клинический журнал Саратовского университета, 1925, № 1.
Подъяпольский П. П., Гипнотическое внушение и его применение в хирургии, Природа, 1926, № 9—10.
Подъяпольский П. П., Гипнология и применение гипнотического внушения в медицине, Труды II Поволжского съезда врачей, т. VI, 1927а.
Подъяпольский П. П., Гипнотическое внушение в гинекологии, там же, 1927б.
Подъяпольский П. П., Гипнотическое внушение, его значение при диференциальной диагностике, применение в терапии и хирургии, Клинический журнал Саратовского университета, 1929, т. VII, № 4—5.
Полотебнов А. Г., Нервные болезни кожи, в сб.: Дерматологическое исследование, в. I, 1887; в. 2, СПБ, 1886.
Попов Е. А., Материалы к вопросу о роли экстрапирамидного аппарата в механизме двигательных условных рефлексов, Современная психоневрология, 1927, № 10
Попов Е. А., К вопросу о генезе некоторых форм мезохизма (пассивного флагеллянтизма), Врачебное дело, 1928, № 10.
Попов Е. А., О некоторых условиях образования навязчивых состояний, Советская психоневрология, 1940, в. 4.
Попов Е. А., Патологически прочные условные рефлексы как основа некоторых расстройств внутренних органов, Врачебное дело, 1947, № 8.
Постольник Г. С., Роды без предварительной подготовки, Труды VIII Всесоюзного акушерско-гинекологического съезда, Киев, 1928.
Постольник Г. С., Опыты применения гипноза и внушения при родах, Журнал акушерства и женских болезней, 1930, № 1.
Потоцкий И. И. и *Жуков И. А.*, Применение гипноза в терапии экземы на курорте Сочи — Мацеста, в сб.: Вопросы дерматологии на курорте Сочи — Мацеста, № 1, 1952.

Пророков И. Р., Влияние беременности на искусственные и натуральные условные рефлексы, Труды физиологической лаборатории имени И. П. Павлова, т. X, 1941.
Протопопов И. М., Применение гипноза в санаторных условиях, Врачебное дело, 1928, № 9.
Пуссеп Л. М., О мозговых центрах, управляющих эрекцией полового члена и семяизвержением. Дисс., СПБ, 1902.
Пшоник А. Т., Роль коры больших полушарий в формировании кожной болевой рецепции, в сб.: Проблемы кортико-висцеральной патологии, под ред. К. М. Быкова, изд. АМН СССР, 1949.
Пшоник А. Т., Кора головного мозга и рецепторная функция организма, М., 1952.
Пэн Р. М. и *Джигаров М. А.*, Образование условных связей в гипнотическом сне, Архив биологических наук, 1936, т. 42, в. 1—2.
Пырский К. И., К вопросу о психотерапии в акушерстве и гинекологии, Акушерство и гинекология, 1927, № 2.
Рише П., Клинический очерк истерии или истероэпилепсии, СПБ, 1886 (перевод с франц.).
Робустов Г. В., Нервные и психические нарушения при раннем сифилисе, Журнал высшей нервной деятельности, 1953, в. 8.
Рожнов В. Е., Терапевтическая эффективность лечебного внушения в удлиненном гипнотическом сне, Невропатология и психиатрия, 1953, т. 53, в. 6.
Рожнов В. Е., Гипноз в медицине, Медгиз, 1954.
Розенсон Г., Психическая травма и эпидемический энцефалит, Врачебное дело, 1928, № 12.
Розенталь И. С., Влияние беременности на условные рефлексы, Архив биологических наук, 1922 а, т. XXI, в. 3—5.
Розенталь И. С., Влияние беременности и лактации на условные рефлексы, Русский физиологический журнал, 1922б, т. V, в. 1—3.
Россолимо Г. И., О роли психических факторов в медицине в связи с необходимостью упрощения лечения болезней нервной системы, Невропатология и психиатрия, 1905, в. 5.
Русецкий И. М., Опыт изучения вегетативных рефлексов при гипнотическом сне, Врачебное дело, 1930, № 18.
Рыбалкин Я. В., Опыт вызывания пузыря на коже путем гипнотического внушения, Газета Боткина, 1890, № 2.
Самойлович А. М., Психическая травма и туберкулез, Краснодар, 1940.
Самойлович А. Л., Врач и больной, Краснодар, Краевое изд-во, 1950.
Самойлович Данило, Избранные произведения, изд. АМН СССР, 1949.
Семянников А. В., Несколько слов к вопросу о применении гипноза в акушерстве, Журнал акушерства и женских болезней, 1907, № 1.
Серейский М. Я., Аффект в его биохимических проявлениях, Журнал психиатрии, неврологии и экспериментальной психологии, 1923, т. III.
Сеченов И. М., Избранные философские и психологические произведения, М., 1947.
Сеченов И. М., Рефлексы головного мозга, изд. АМН СССР, 1952.
Слоним А. Д., Влияние коры головного мозга на регуляцию тепла в организме, Сообщение 2, Физиологический журнал СССР, 1938, т. 25, в. 6.
Смирнов Д. А., Два случая тяжелого травматического невроза, излеченных гипнотическим внушением, Невропатология и психиатрия, 1916, № 2.
Смирнов Д. А., О влиянии гипнотического внушения в случаях комбинации органического и функционального, Медицинское обозрение, 1917, № 1.
Смирнов Д. А., О психогенных дерматозах, Днепропетровский медицинский журнал, 1924, № 7.
Смирнов Д. А., Гипнотерапия и гипнотерапевты, Днепропетровский медицинский журнал, 1929, № 4—6.
Смирнов К. М., Минутный объем сердца собаки и его условнорефлекторная регуляция при мышечной работе, Бюллетень экспериментальной биологии и медицины, 1940, т. 11, в. 6.
Сорохтин Г. Н., Рефлексологические типы детей школьного возраста, изд. „Сеятель", 1925.
Сорохтин Г. Н., *Тургель К. Ю.* и *Минут-Сорохтина О. П.*, О сочетательных ваготропных рефлексах сердца, Физиологический журнал СССР, 1934, т. 17.
Сперанский А. Д., Элементы построения теории медицины, ВИЭМ, 1935.
Сперанский В. Н., О сущности и механизме гипнотического внушения, Врачебное дело, 1924, № 19—20.
Срезневский В. В., Гипноз и внушение, Л., 1924.
Срезневский В. В., Методы современной психотерапии и лечение внушением, Обозрение психиатрии, 1935, 4—5.
Стойко А. Г., Хронический никотинизм (табакокурение) и его лечение, Горький, 1935.

Стрельчук И. В., Терапевтические условные связи при хроническом алкоголизме, Журнал высшей нервной деятельности, 1951 а, в. 2.
Стрельчук И. В., Опыт применения длительного сна и изучения влияния его при морфинизме, Журнал высшей нервной деятельности, 1951 б, т. 1, в. 3.
Стрельчук И. В., Охранительное торможение и лечебный сон в психиатрии и невропатологии, Журнал высшей нервной деятельности, 1952, т. II, в. 4.
Стрельчук И. В., Опыт диференцированного гипнотерапевтического воздействия в свете учения И. П. Павлова о двух сигнальных системах, Журнал высшей нервной деятельности, 1953, т. III, в. 3.
Строкина Г. В., Экспериментальные исследования взаимодействия первой и второй сигнальных систем у детей-невротиков, Журнал высшей нервной деятельности, 1951, т. I, в. 5.
Стычинский И. Л., К вопросу о психогенных колебаниях температуры, Клиническая медицина, 1923, т. I, № 5–6.
Сумбаев И. С., К вопросу о вазомоторных расстройствах, вызванных гипнотическим внушением, Сибирский архив клинической медицины, 1928, № 4.
Сумбаев И. С., К психотерапии гомосексуализма, Советская психоневрология, 1936, № 3.
Сумбаев И. С., К теории и практике психотерапии, Иркутское областное издательство, 1946.
Суслова М. М., Экспериментальное исследование динамики гипнотического сна у человека, Физиологический журнал имени И. М. Сеченова, 1940, т. XXIX, в. 3.
Суслова М. М., Исследование работоспособности коры больших полушарий в сомнамбулической фазе гипноза, Труды Института физиологии имени И. П. Павлова, 1952, т. I.
Сыркин М. И., Знеболювання родів гіпнозом, Педіатрія, акушерство і гінекологія, 1947, № 3.
Сыркин М. М., Опыт трехлетней работы киевского городского акушерского гипнотария, 1950, Педіатрія, акушерство і гінекологія, 1950, № 31.
Тапильский А. А., Изменение количества лейкоцитов при внушении сытости или голода в состоянии условнорефлекторного сна, Медицинская мысль Узбекистана, 1928, № 2.
Тарло Б. С., Об ятрогенных заболеваниях в гинекологии, Врачебное дело, 1928а, № 7; Казанский медицинский журнал, 1928б, № 1.
Тарханов И. Р., Случай произвольного ускорения сердцебиения, Еженедельная клиническая газета, 1881, № 10.
Татаренко Н. П., К психопатологии и патофизиологии фантома свежеампутированных. Дисс., 1948; Медиздат Украины, 1952.
Татаренко Н. П., К психопатологии синдромов, связанных с явлением инертного возбуждения в коре головного мозга, Журнал высшей нервной деятельности, 1951, т. I, в. 4.
Тер-Аветисов Г. Р., Случай применения гипноза при эпилепсии, Современная психиатрия, 1907, в. 6–7.
Тер-Овакимов Я. А., Гипноз и условные рефлексы, Труды Тбилисского института функциональных нервных заболеваний, т. I, 1936а (на грузинском языке).
Тер-Овакимов Я. А., Болезненные роды под влиянием гипнотических внушений, Труды Института функциональных нервных заболеваний, т. I, 1936б (на русском языке).
Тер-Овакимов Я. А., О гипнотической аналгезии при операциях, Труды Института функциональных нервных заболеваний, т. I, 1945а (на русском языке).
Тер-Овакимов Я. А., Влияние внушенных в гипнозе эмоций на функцию анализаторно-статического равновесия, Труды Института функциональных нервных заболеваний, т. II, 1945б (на русском языке).
Тер-Овакимов Я. А., Об ятрогенных заболеваниях и лечении их психотерапией, Труды Института функциональных нервных заболеваний, т. II, 1945в (на русском языке).
Тимофеев Н. Н., К вопросу о механизмах эмоциональных реакций у душевно-больных, Невропатология и психиатрия, 1938, в. 11.
Тихомиров Д. М., О роли эмоций в эпилепсии, Обозрение психиатрии, невропатологии и экспериментальной психологии, 1913, № 1.
Токарский А. А., Гипнотизм и внушение, Архив психиатрии, 1887, т. XI, в. 1 и 3.
Токарский Б. А., Терапевтическое применение гипнотизма, Доклад на IV съезде русских врачей, СПБ, 1891.
Токарский Б. А., О гипнотической аналгезии при родах, Современная психоневрология, Киев, Огиз, 1926, т. XII.
Токарский Б. А., Устранение гипнозом спонтанной гангрены, Саратовский вестник здравоохранения, 1925, № 1–2.
Тома Ф., Внушение и его роль в деле воспитания, СПБ, 1911 (перевод с франц.).

Топчибашев И. М., Психические моменты и значение их выключения при обезболивании Клиническая медицина, 1950, в. 9.
Триумфов А. В., Учение М. И. Аствацатурова о психосоматическом взаимоотношении и его дальнейшее развитие, в сб.: Проблемы кортико-висцеральной патологии, Изд. АМН СССР, 1949.
Трутень М. Д. и *Марморштейн Ф. Ф.*, К вопросу о влиянии внушения на цветное зрение, в сб.: Вопросы нейротравматологии и психоневрологии, ч. 2, под ред. И. З. Вельвовского, 1941.
Тюленев Н. А., К вопросу о значении психотерапии в клинике соматических заболеваний, Клиническая медицина, 1930, т. VIII, № 23—24.
Тюленев Н. А., К вопросу о значении психотерапии в курортной практике, в сб.: Вопросы дерматологии на курорте Сочи-Мацеста, Краснодар, 1952.
Урин А. Г. и *Зенкевич Е. С.*, Пищевой лейкоцитоз и лейкоцитарный условный рефлекс на время приема пищи, Журнал высшей нервной деятельности, 1952, в. 2.
Ухтомский А. А., К 15-летию советской физиологии, Физиологический журнал СССР, 1933, т. 12, в. 1.
Федоров В. П., О возможности широкого применения гипноза при операции аборта, Труды I Ленинградского медицинского института, т. I, 1925.
Фельбербаум Р. А., *Левитус Е. Л.* и *Соколова И. М.*, Характеристика состояния центральной нервной системы при ревматизме у детей, Педіатрія, акушерство і гінекологія, 1953, в. 1.
Филимонов И. Н., Травматический невроз по материалам войны 1914—1918 гг., 1927.
Финне В. Н., Ожоги, вызванные внушением в гипнотическом состоянии, Журнал для усовершенствования врачей, 1928, № 3.
Фольборт Г. В., Физиологические процессы утомления и восстановления, Медгиз, 1951.
Форель А., Гипнотизм, внушение и психотерапия, Л., 1928.
Фосс Е. Е., К учению об истерической лихорадке, Невропатология и психиатрия, 1904, № 4.
Фролов Ю. П., Иван Петрович Павлов (воспоминания), 1949 а.
Фролов Ю. П., Патофизиология бронхиальной астмы и других спазматических состояний в свете учения И. П. Павлова, в сб.: Проблемы кортико-висцеральной патологии, 1949б.
Фурсиков Д. С., Влияние беременности на условные рефлексы, Архив биологических наук, 1922, т. XXI, в. 3—5.
Хек-Тюк, Дух и тело, 1904, СПБ (перевод с англ.).
Холоденко М. И. и *Хаймович М. М.*, Об ятрогении в санпросвете, Советская невропатология, психиатрия и психогигиена, 1934, т. III, в. 10.
Хорадзе Е. Е., Психовестибулярный симптомокомплекс невротиков, Труды Института функциональных нервных заболеваний, т. I, 1936, Тбилиси (на русском языке).
Хорошко В. К., Факты, понятия и проблемы в патологии эпилепсии, Труды I Всесоюзного съезда невропатологов и психиатров, М., 1927.
Цветков И. Т., К обезболиванию родов по методу прямого словесного воздействия (внушения), без предварительной дородовой психотерапевтической подготовки, Акушерство и гинекология, 1941, № 1.
Цейкинская Ф. Б. и *Утевский Н. Л.*, К амбулаторному лечению алкоголиков, Труды Украинского психоневрологического института, т. XIV, 1930.
Цитович И. С., О так называемых вазомоторных психорефлексах, Русский физиологический журнал, 1918, т. I.
Цынкин А. М., Кровяное давление в гипнозе (экспериментальное исследование), Труды Украинского психоневрологического института, т. XIV, 1930а.
Цынкин А. М., Пульс и дыхание в состоянии бодрствования и в гипнотическом состоянии (экспериментальное исследование), там же, 1930б.
Чалисов В. Н., *Вольфсон В. Н.*, *Арутюнов Д. Н.*, О биохимических изменениях крови при эмоциях, Невропатология и психиатрия, 1937, т. VI, в. 5.
Черноруцкий М. В., Пути советской медицины в лечении внутренних болезней, Советский врачебный журнал, 1937, № 20.
Черноруцкий М. В., Психогения и психотерапия при внутренних болезнях, Советский врачебный сборник, 1946, в. I.
Черноруцкий М. В., Учение И. П. Павлова и клиническая медицина, Л., 1953.
Черяпкин В. И., Применение гипноза в хирургии, акушерстве и стоматологии в участковой практике, Журнал современной хирургии, 1931, в. 3.
Чхаидзе И. Д., Три случая истерической глухоты и глухонемоты, Советская медицина, 1937, № 11—12.

Шатенштейн Д. И., Тезисы сообщений на XV Международном физиологическом конгрессе Л., 1935.
Шатенштейн Д. И., Регуляция физиологических процессов во время работы, Медгиз, 1938.
Шатский В. Л., Из гипнотерапевтической практики участкового врача, Современная психоневрология, 1936, № 4.
Шац М. В., О хирургических способах лечения внушением, I съезд хирургов и гинекологов Уральской области, Свердловск, 1927.
Шварц А. А., Значение слова и его звукового образа как условного раздражителя, Бюллетень экспериментальной биологии и медицины, 1948, в. 4.
Шварц А. А., Смысл слова и его звуковой образ как условные раздражители, Сообщение 2, Бюллетень экспериментальной биологии и медицины, 1949, т. 27, в. 6.
Шварцман С. Д., Опыт применения внушения в гипнозе при фантомных явлениях, Невропатология и психиатрия, 1946, в. 6.
Шильдер П. и *Каудерс О.*, Гипнотизм, Огиз, 1927 (перевод с нем.).
Шлифер Р. Я., О влиянии инъекции адреналина на кровяное давление во время экспериментального сна (гипноза), Труды Украинского психоневрологического института, т. XIV, Харьков, 1930а.
Шлифер Р. Я., О значении психотерапевтического воздействия на туберкулезных больных, там же, 1930б.
Шлифер Р. Я., К словесному обезболиванию родового акта, там же, 1930в.
Шрайбер Я. Л. и *Пырский К. И.*, К вопросу обезболивания нормального родового акта, Советская нейропсихиатрия, 1939, т. III.
Шрайбер Я. Л., К вопросу об острых эмоциональных невротических реакциях и их терапии во фронтовых условиях и в тылу, Советский врачебный сборник, 1947.
Шрайбер Я. Л., О соотношении субкортикальных реакций в гипноидных состояниях, 13-е совещание по физиологическим проблемам, посвященное памяти И. П. Павлова, Л., 1948.
Штауфенберг, Психотерапия в клинике внутренних болезней, Психотерапия, 1913, № 3.
Штейн Л. И., Лечение бородавок внутрикожными впрыскиваниями физиологического раствора, Советский врачебный журнал, 1934, № 1.
Штейнберг Л. Д., Опыты применения гипнотерапии в повседневной работе детского больничного стационара, Врачебная газета, 1927, № 22.
Шульц, Психотерапия, Берлин, 1925 (перевод с нем.).
Щеглов П. О., Материалы к применению гипноза в хирургии, Новый хирургический архив, 1930, т. 20, кн. 3-я.
Эдельберг Г. В., Психотерапия, в кн.: Руководство по женским болезням проф. Л. П. Кривского, Л., III, 1926.
Эдельштейн А. О., Генез и структура ятрогений, Советский врачебный сборник, 1947, в. 9.
Эпштейн Д. Я., Душа туберкулезного в освещении художественной и научной литературы, Киев, 1920.
Эпштейн Ф. Ц. и *Лущицкий В. О.*, Практическая ценность метода косвенной рентгенотерапии при некоторых заболеваниях кожи, Казанский медицинский журнал, 1936, в. 7.
Яковенко, Об истерической лихорадке, Невропатология и психиатрия, 1905, № 3—4.
Яковлева Е. К., Психогигиена и психотерапия больных с последствиями закрытых травм мозга, Авторефераты научных работ Психоневрологического института имени Бехтерева, 1946.
Яковлева В. В., Экспериментальный невроз при свободной двигательной деятельности собаки, Журнал высшей нервной деятельности, 1951, т. I, в. 6.
Яншевский А. Е., Истероидные явления при sclerosis disseminata, Труды Общества невропатологов и психиатров при Саратовском университете, т. I, 1927.
Яновский М. В., Курс общей терапии внутренних болезней, 4-е изд., 1923.
Янушкевич И. Л., Гипнотизм, Реальная энциклопедия медицинских наук, т. 4, 1892.
Ясинский В. и *Картамышев А.*, Лейкоцитоз при эмоциональных состояниях, Современная психоневрология, 1930, № 12.

BIBLIOGRAPHY

Foreign

Bernheim H., De la suggestion et de ses applications à la thérapeutique, Paris, 1888.
Bernheim H., Hypnotisme et suggestion, Paris, 3e édition, 1910.
Bloch B., Über die Heilung der Warzen durch Suggestion, Klin. Wschr., 1927, Nr. 48—49.
Bonjour, L'influence de la suggestion dans 4 cas de pellade, La presse med., 1925.
Braid James, Neurohypnology, London, 1883; Paris, 1843.
Bratz, Die affectepileptischen Anfälle der Neuropathen, Wschr. f. Psych., 1911, Bd. XXIX.
Bünemann, Zschr. f. d. ges. Neur. u. Psych., 1924, Bd. 88.
Burdon Charles, Etude sur la staso-basophobie, de Lille, 1904.
Delhougne u. Hansen, Dtsch. Arch. klin. Med., 1927, Bd. 157.
Demole, Revue neurol., 1927, No. 6.
Deutsch u. Kauff, Zschr. f. d. ges. exp. Med., 1923, Bd. 60.
Eichelberg, Dtsch. Zschr. f. Nervenheilk., 1921, Bd. 68—69.
Erikson, The Induction of Colour Blindness by a Technique of Hypnotic Suggestion, Journal of Psychology, 1939, 20, 61, 89.
Esquieol, Des maladies mentales, considerées sous les rapports medical, hygiénique et médicolégal, Paris, 1858.
Féré Ch., La pathologie des émotions, Paris, 1892.
Flurnoy H., Epilepsie émotionnelle, Arch. de psychol., 1913, t. XIII, Nr. 49.
Gessler u. Hansen, Dtsch. Arch. f. klin. Med., 1927, Bd. 10.
Gestan R., Les épilepsies, 1922.
Glaser, Psychische Beeinflussung des Blutserum Kalkspiegels, Klin. Wschr., 1924, Nr. 33.
Glaser, Med. Klin., 1924, Nr. 10.
Gowers, System of Medicine, London, 1910.
Graje u. Mayer, Wiener klin. Wschr., 1925, Nr. 12.
Grumach, Über Suggestivbehandlung von Warzen, Münch. med. Wschr., 1927, Nr. 24.
Heilieg u. Hoff, Zschr. f. d. ges. Neur. u. Psych., 1923, Bd. 86.
Heilieg u. Hoff, Klin. Wschr., 1923, Nr. 46.
Heilieg u. Hoff, Beitrag z. hypnotischen Beeinflussung der Magenfunktion, Med. Klin., 1925, Nr. 5.
Heilieg u. Hoff, Allgem. Zschr. f. Psych., 1928, Nr. 3.
Heyer, Klin. Wschr., 1923, Bd. 2.
Heyer G. R., Psychogenese u. Psychotherapie körperlicher Symptome. Herausgeg. v. Osw. Schwarz, Psychogenes Funktionst. des Verdauungstraktes, 1925.
Hoff u. Wermer, Klin., Wschr., 1925, Nr. 8.
Hoff u. Wermer, Klin. Wschr., 1928, Nr. 8.
Jaltrain E., L'émotion, facteur de déséquilibre humoral, Presse med., Juin, 1933.
Kirschenberg, Die Veränder. d. Blutviskosität während der Hypnose, Zbl. f. d. ges. Neur. u. Psych., 1925, Bd. 41.
Köhler S. u. Behr M., Über suggestives Injectionsfieber bei Phthisiker, Dtsch. Zschr. f. klin. Med., 1905, Bd. 2.
Kohnstamm u. Eichelberg, Zschr. f. Nervenheilk., 1921, Bd. 68—69.
Landheinrich, Münch. med. Wschr., 1922, Nr. 41.

Liébault, Du sommeil provoqué et des états analogues, édit. 1, 1866; édit. 2, 1889.
Lumière Auguste, Rôle des facteurs émotifs dans les troubles fonctionnels et les affections organiques, Presse med., 1928, Aut. 8.
Levy-Suhl, Die hypnotische Heilweise u. ihre Technik, Berlin, 1922.
Marcus u. Sahlgreen, Münch. med. Wschr., 1923, Nr. 10.
Mohr R., Münch. med. Wschr., 1921, Bd. 61.
Sarbo, Über hysterische Fieber, Arch. f. Psych., 1891, Bd. 23.
Smirnoff Donate, Revue de l'hypnotisme, 1909, No. 6.
Strümpell, Über das sogen. hyst. Fieber, Dtsch. Zschr. f. Nervenheilk., 1906, H. 3—4.
Thomas Ernst, Über hysterische Symp. bei organischen Hirnerkrank., Allg. Zschr. f. Psych., 1918, Bd. 60, H. 4.
Toulouse et Vurpias, Revue neur., 1906, p. 514.
Viegouroux, Etat mental dans les tumeurs cérébrales, Revue de Psych., 1903, No. 5.
Voisin, Emploi de la suggestion hypnotique dans certaines formes d'aliénation mentales, 1897.
Weber E., Der Einfluß psychischer Vorgänge auf den Körper, 1910.
Wisch I. M., Anwendung der Hypnose bei Psoriasis, Dermatol. Wschr., 1935, Bd. 100. Nr. 8.

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